JANUARY 1953

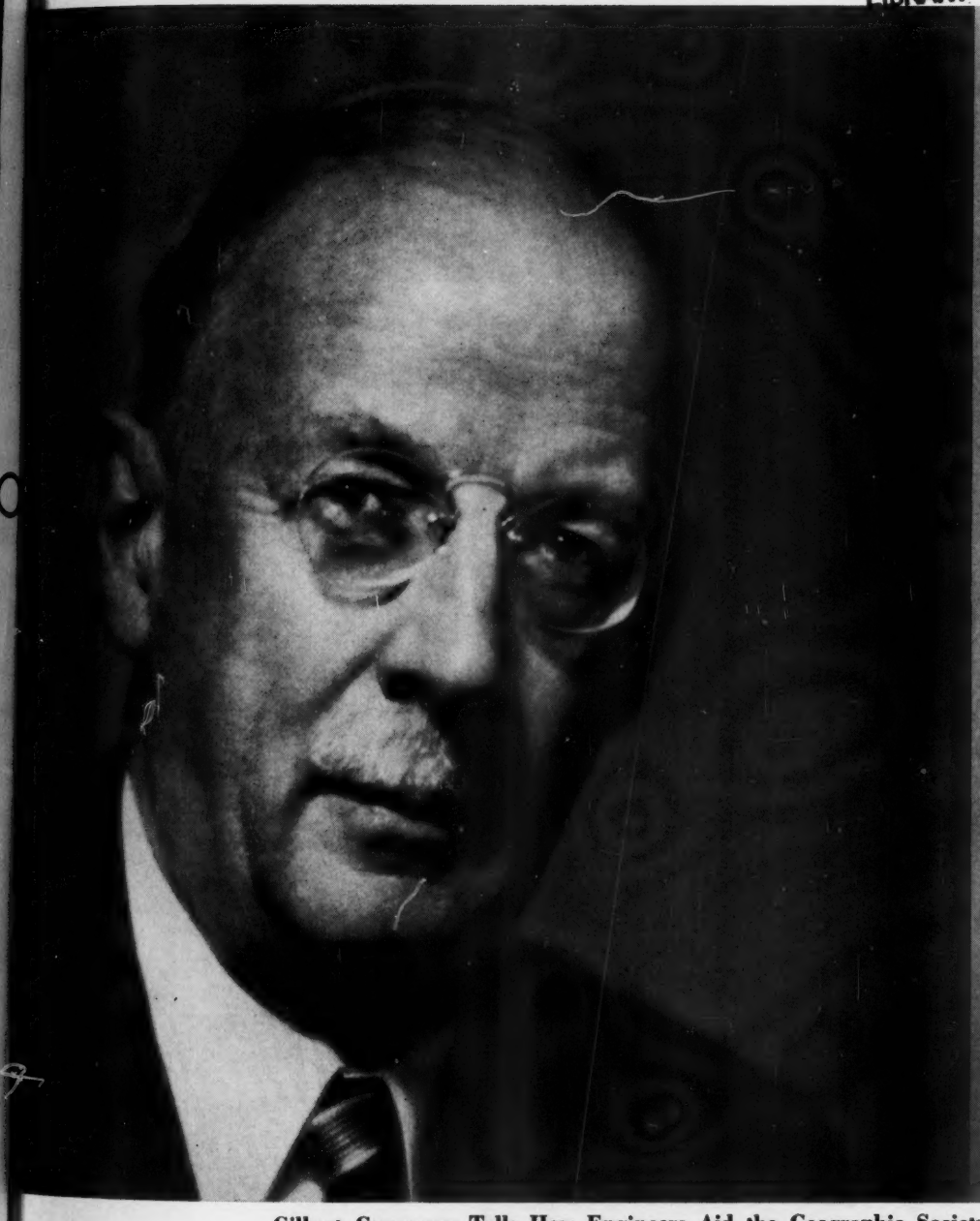
American Engineer

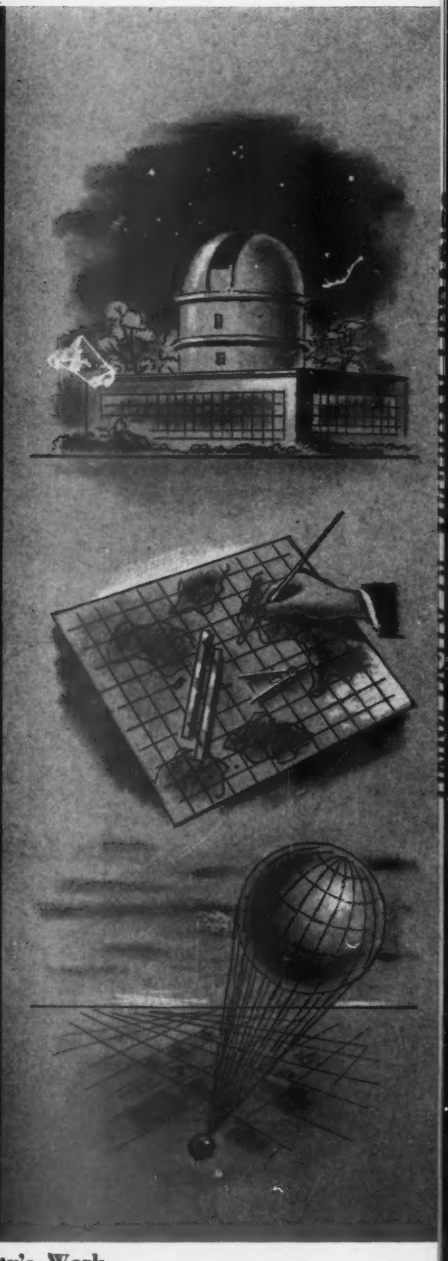
IN THIS ISSUE . . .

● **THERE'S ENGINEERING IN EXPLORATION**

By Gilbert Grosvenor,
President, National Geographic Society

UNI. OF MICHIGAN
JAN 16 1953
ENGINEERING LIBRARY





Gilbert Grosvenor Tells How Engineers Aid the Geographic Society's Work

. . . *Also*

Story on Education
By Rutgers' President, Lewis Webster Jones

●

Engineer: Homefront Specialist
—On Life with the Engineer—

●

Plus Late Washington Report and Other Features

To convince those who count . . . reach these *important professionals!*

PLACE your message before the group of professional men from whom industry selects its top executive talent . . . professional engineers who direct America's industrial and business life. The American Engineer is published specifically for the men you want to know about you—professional leaders who make up the Membership of the National Society of Professional Engineers. Your message will receive full attention in the pages of their own journal—The American Engineer.

FOR MORE INFORMATION, PLEASE WRITE:

J-V ASSOCIATES,
274 MADISON AVENUE
NEW YORK 16, N. Y.
Telephone ORegon 90078

American Engineer

Letters

Item of Interest . . .

Dear Editor:

I was very much interested in the article by P. L. Smith, President of the National Association of Electrical Companies, in the December issue of the AMERICAN ENGINEER. He made reference to the early use of suspension type insulators on transmission lines, about the year 1908.

The J. G. White Engineering Corp., built one of the early 60,000 volt transmission lines on which suspension type insulators were used, between Chattanooga and Knoxville, Tennessee, in 1910-1911. This was on a contract with the Eastern Tennessee Power Co. At that time I was construction manager for The J. G. White Co., on that job. I can recall shipping one or two crates of suspension type insulators to the So. Calif. Edison Co., for test purposes, to be used on the transmission lines from their Big Creek development. These insulators were manufactured by the Ohio Brass Co. I am reasonably sure the So. Calif. Edison Co. was the first user of suspension type insulators in California.

I also note with interest, Mr. Smith's remarks concerning the early development of motor and generator equipment. My recollection is that Gano Dunn, President of The J. G. White Engineering Corp., formerly Vice President and Chief Engineer of the Crocker-Wheeler Electric Mfg. Co., had a lot to do with the development of that equipment between 1911 and 1913.

I thought this information might be of some interest to those who were connected with the early development of both steam and hydro-electric power in the United States, prior to the entrance of the Federal Government into the power industry.

JOHN STEARNS, P. E.,
Life Member A.S.C.E.,
Member N.S.P.E.,
Los Angeles, Calif.

Strong Force . . .

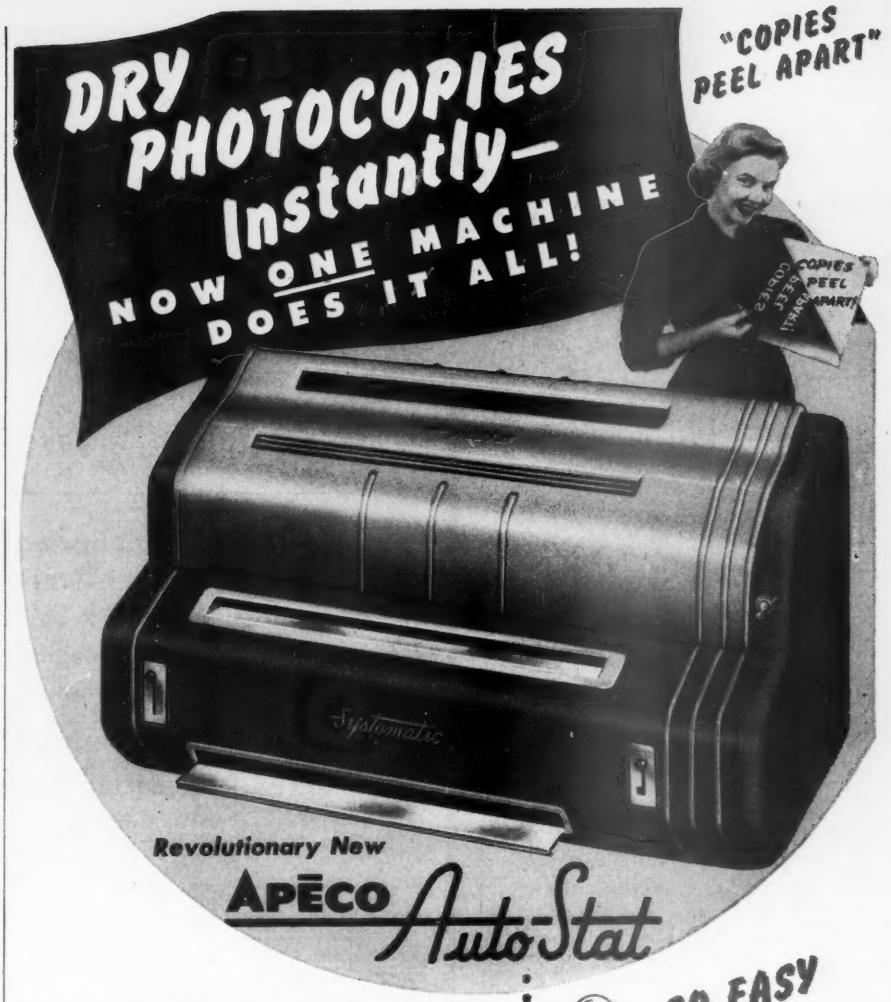
Dear Editor:

It is always with great expectations that I open the pages of THE AMERICAN ENGINEER—and I am never disappointed. I am not always in agreement with the material published in our magazine, but then this is natural human behavior. It cannot be denied that THE AMERICAN ENGINEER is in itself a strong unifying force within our profession because it imparts a stimulating effect and incites discussion and exchange of ideas among those who read it.

I must now come to the point and try to present one or two ideas on important topics that have been discussed in our magazine from time to time. Although I practice engineering in the state of Indiana as a Registered Civil Engineer, I have accumulated several years of experience in foreign practice; consequently, I have come in contact with many foreign engineers.

It is truly remarkable to note that these engineers are held in the highest regard and esteem within the societies in which they live. Their opinions are consulted not only on matters of technical nature, but also on questions of civic character. The respect and appreciation accorded to them is reflected even in the manner in which they

(Continued on page 7)



Revolutionary New
APECO Auto-Stat

With built-in automatic continuous printer

All-in-one compact unit makes photo-exact copies direct from original letters, forms, bids, contracts, invoices, catalog sheets, reports, blueprints.

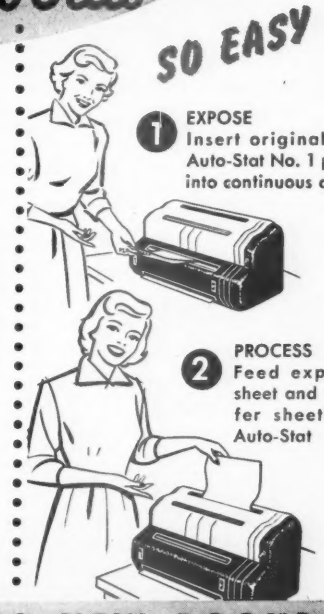
Now a single all-electric compact photocopy set-up . . . makes a dry photocopy from any original in less than 45 seconds without any other additional equipment. This new unit prints, processes and dries all automatically . . . copies are ready for instant use. The Apeco Auto-Stat saves up to 80% on copying jobs. Eliminates costly re-typing, hand copying, checking or sending outside for expensive copying service. It's fast – only 2 steps will make legally accepted prints from any original up to 11 x 17 inches – whether printed on one or two sides.

SO LOW COST

A complete Apeco Auto-Stat one-unit photocopying installation is priced well within the budget of even the smallest firms. It is remarkably low in cost of operation, too!

No Separate Printer or Timer

No Developing **No Fixing**
No Washing **No Drying**
No Trays **No Dark Room**


SO EASY
1 EXPOSE
Insert original and Auto-Stat No. 1 paper into continuous copier
2 PROCESS
Feed exposed sheet and transfer sheet into Auto-Stat

HAVE YOU READ THIS NEW BOOK?

Here is a really informative, worthwhile, factual report on an important new copying development. New booklet pictures and tells complete Auto-Stat story – shows how you can use this revolutionary new photocopy method.

IT'S FREE!

Developed and manufactured in the U.S.A. by
AMERICAN PHOTOCOPY EQUIPMENT COMPANY

American Photocopy Equipment Co.
2849 N. Clark St., Chicago 14, Ill., Dept. A.E.-13

Please rush me—without obligation—FREE copy of your new book on Auto-Stat—with full details on this new photocopy method.

Name_____
Firm_____
Address_____
City_____ Zone____ State_____

American Engineer

JANUARY
1953

"The immediate reasons for speeding the Engineering Center program are self-evident and compelling.

"Tremendous opportunities confront the engineering professions. Columbia's Trustees believe science and engineering education must be furthered at the highest professional level.

"Columbia's design for engineering, international in scope, is basically significant. I am convinced it will have the generous support it deserves."

—DWIGHT D. EISENHOWER,
as President of Columbia University

Kenneth E. Trombley,
Editor

A. C. Neff, P.E.,
Chairman, Publications
Committee, NSPE

SPECIAL ARTICLES

There's Engineering in Exploration! 11
By Gilbert Grosvenor, President, The National Geographic Society. Some Fascinating Accounts of Instances in Which Engineering Skill Helped in Major Expeditions of the Society.

The Role of the State University in Progress and Development 16
By Dr. Lewis Webster Jones, President, Rutgers University.

The Engineer: Homefront Specialist 20
By Mrs. Frances T. Kirkwood. An engineer's wife writes on life with a sliderule man.

Memo to National Engineers' Week Chairmen 18
Arms Standardization Need Re-Emphasized 22
James F. Fairman Praised by Oscar Chapman 23
A Tribute to Arthur V. Sheridan 25

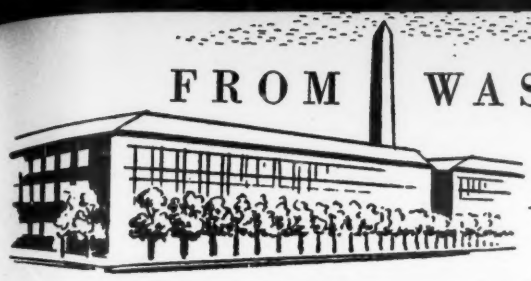
REGULAR FEATURES

Letters 3
From Washington—Late Report 5
Professional Briefs 8
Editorial 10
Professional Postscripts 24
With Our Members 26

CCA
Member, Controlled Circulation Audit

Advertising Representative:
J-V Associates,
274 Madison Avenue,
New York 16, N. Y.
Telephone: ORegon 9-0030

The American Engineer is published monthly by the National Society of Professional Engineers, 1121 15th St., N. W., Washington 5, D. C. Entered as Second Class Matter at the Post Office, Washington, D. C., under act of March 3, 1879. Copyright, 1953, by the National Society of Professional Engineers. Not responsible for opinions expressed in signed articles. Subscription Rates: $2 per year in advance to members of NSPE and its Affiliated Societies; $3 per year in advance to non-members in U. S. A. and its possessions, Canada, and Mexico. Foreign, $4 per year. Single copy, 35c.



FROM WASHINGTON

By
Milton F. Lunch,
N.S.P.E.'s Legislative Analyst

"What's in a name?" queried Shakespeare—to which the answer is, "everything"—when it comes to the Taft-Hartley Act. To understand the current political tugging and hauling over the "Taft-Hartley" name, one must go back to the atmosphere of 1947 when the law was passed.

Labor fought the replacement of the original Wagner Act by the Taft-Hartley Act in terms of specific objections to certain provisions and on the general philosophy that the new labor law represented a "crack-down" on labor. When, despite the strong opposition, the Act was passed over the President's veto, it was tagged a "slave labor law" and a campaign was immediately instituted to bring about its repeal—and nothing short of repeal.

The big "push" for repeal was made in 1949 following President Truman's unexpected victory of 1948, based in large part upon his charge during the '48 campaign that the law was in fact a "slave labor law" and his allegiance to the cause of repeal. The uncompromising and undying opposition of the labor groups to the Act at that time was aptly expressed to the writer by a ranking attorney for one of the labor federations. The occasion for the statement was a visit to the labor attorney at the suggestion of a Labor Department official in connection with NSPE's interest in retaining the professional provisions of the law. It had been suggested that the professional provisions protecting the rights of professional employees to separate determination in collective bargaining elections was somewhat analagous to the long-time interest of certain unions regarding the protection of craft union homogeneity; therefore, the labor group might be induced to support the retention of the professional provisions. The labor attorney, admitting a lack of knowledge of the professional provisions, asked only one question: "Are these provisions part of the Taft-Hartley Act?" Upon learning that this was the case, his answer was direct, simple, and expressive of the general labor attitude. "We're against them, then. We're against every word, every comma, every sentence, every period, and every paragraph of the Taft-Hartley Act." Thus, ended the interview.

But time and politics have a way of changing things, and the labor unions see the question today in a vastly different frame of reference. They still have hopes of repealing the Taft-Hartley Act, but it is more a wistful hope than a real one. Senator Robert A. Taft, (R., Ohio), offered in 1949 to accept a considerable number of amendments to the law which bears his name to modify or eliminate those provisions which time had proved to be unduly harsh or impractical. But his offer was rejected. It was repeal or nothing—and the answer was "nothing."

Today, General Eisenhower's Secretary of Labor-designate—Martin P. Durkin, a well-known AFL labor leader, talks of working out satisfactory amendments to the Taft-Hartley Act in cooperation with Senator Taft, with a meeting between the two in the offing. Likewise, George Meany, new president of the AFL, has engaged in preliminary conversations with Senator Taft to develop

(Please turn the page)

(From page 5)

amendments to the law. These amendments are likely to be very close to those offered by the Ohio Republican in 1949, but rejected then.

Labor would be more than happy to settle for these amendments if only they could change the name of the law they once called a "slave labor act." And here politics rears its ugly head. One report is to the effect that the Eisenhower administration will go along with a change of name through the technique of having the House Labor Committee and then the House pass a "clean" bill which would be the Taft-Hartley Act with the Taft amendments of 1949, plus a few other changes. The Chairman of this Committee will be Representative Samuel K. McConnell, Jr., (R., Pa.), a moderate Republican. By this device the "clean" bill would be tagged, "the McConnell Act." But this strategy, (there is no real evidence that any responsible Eisenhower adviser backs this) obviously cannot succeed if Senator Taft holds the chairmanship of the Senate Labor Committee to which he is entitled under the unwritten rules of seniority. Senator Taft is understandably just as jealous and proud of the "Taft-Hartley" name as labor is opposed. It is practically a certainty that he would not fall in with any such scheme to satisfy labor and the chances of success in the Committee or the Senate over his active opposition are very slim.

This brings us, then, to the final scene of this somewhat speculative political drama. Since the Eisenhower victory there has been much backstage maneuvering among Republican Senate leaders over the choice of a majority leader. Senator Taft has stated that he is "available" for the post. So is Senator Styles Bridges of New Hampshire, with the condition that he would accept the majority leader post only if he could still retain the chairmanship of the powerful Appropriations Committee to which he is entitled by reason of seniority. Customarily, the majority leader does not hold the chairmanship of a major committee. With Senator Taft's powerful blast at the Eisenhower appointment of Democrat Durkin for Secretary of Labor the Washington "insiders" assumed that he had lost any chance he may have had of becoming majority leader and Senator Bridges was assumed to be a sure bet.

Within the past few days, however, two prominent Republican Senators of the Eisenhower faction of the party have declared for Senator Taft for the majority leader position. The cynical might interpret this move to give the Ohio leader the majority post a calculated development to remove Senator Taft from the chairmanship of the Labor Committee and thus open the way for a "McConnell labor law" to replace the Taft-Hartley Act. But there are several flaws, if such be the intent. First, as majority leader Senator Taft would be in a powerful position to block such legislation from coming to a vote on the Senate floor. Secondly, Senator H. Alexander Smith of New Jersey, one of those now supporting Senator Taft for the majority post, has stated that he would be in favor of Senator Taft retaining the Labor Committee chairmanship as well as taking the majority leadership. "I think he can handle both jobs," said Senator Smith. "He is a brilliant operator with a great mind capable of seeing issues quickly." This statement from Senator Smith is particularly significant because the New Jersey Senator would be the most likely choice as Chairman of the Labor Committee should it not go to Senator Taft. Senator Smith is third in line of seniority on the committee, ranked only by Senator Aiken of Vermont who is scheduled to head the Agriculture Committee. Another senatorial rule of long standing is that a Senator may not be the chairman of two major committees at the same time.

All of the above speculative analysis proves nothing as to the actual developments in the final picture—except that politics is an interesting and intriguing business. As for the professional provisions of the Taft-Hartley Act, which is the main point of interest for professional engineers—the odds are that when all is said and done the Taft-Hartley Act will remain on the books by the same name and the professional provisions will still be a part of that law.

Letters

(Continued from page 3)

are addressed: "Mr. Engineer Lopez," rather than just Mr. Lopez.

On the other hand, it is to be regretted that the term "engineer" should be put to so much misuse in our country. This is one of the reasons why engineers hold an unfirm social standing in our midst. One often hears: "the union of flight engineers has decided to go on strike . . .", or "the brotherhood of locomotive engineers . . .". The superabundance of these so-called "engineers" deprives the term of its proper meaning, bringing a detrimental effect to our profession. Our neighbors to the south do not grant anyone the right to use the title of Engineer except those who are duly qualified as such; thus their position is enhanced within their society. These engineers often seek and occupy positions of political and civic responsibility while we confine ourselves merely to our technical circle. An engineering education develops a sober and rational thinking habit in most engineers. Why, then, do we not put to good use this qualification in civic matters?

Now I come to the much publicized matter of "shortage of engineers." There may be potential power in numbers, but in a profession there is more merit in quality—we have but to look at the American Medical Profession to see how this principle operates. It is admitted that there may be a shortage of personnel in our field—but it is not of engineers as the term implies! With no malice or disregard toward anyone, I say that the shortage is of technicians and draftsmen. We must face this problem with no attempt to camouflage it or misinterpret it. Men in prominent positions in this nation have made statements to the effect that there is a shortage of engineers in this country. I believe that this is misleading, and that it is an injustice not only to our profession but to the public as well—and more than that, it is a disservice to future engineers who may enter the engineering profession and find themselves in a highly competitive and consequently poorly remunerating field.

We will do well to follow the advice of Engineer John Gammell, AMERICAN ENGINEER, November, 1952, and make better use first of the services of present professional engineers before we consider the delusive premise regarding the shortage of engineers. It seems true that recent graduates have not had too much difficulty in finding jobs, but —and this is what hurts—they have often had to accept lower salaries than those paid to non-professional men they supervise. This, obviously, brings about disappointment and discontentment. Prospective engineers should take due notice of such anomalies, and decide whether an investment of several years of their lives and a sizable amount of money in an engineering education is worthwhile, or whether they would spend their time and money more profitably acquiring some other profession, or indeed even only a trade. Before we conduct the often advocated campaign to attract high school graduates into our fold, we must first analyze what we have to offer. The engineering career is a challenging and highly satisfying profession because of the very fact that it is creative. But human beings do not live on satisfaction alone. There must be an adequate remuneration for one's efforts and responsibilities. I believe that the compensation of engineers is governed by the fundamental law of supply and demand. What hope is there of bettering our financial status as long as this law is unbalanced against us? Yet, some of our own members are proclaiming ingenuously that there is a shortage of engineers. We must first improve the standing of our present lot before we exert undue efforts to increase our numbers. And, as a starter, I would suggest that we instruct our public on the proper use of the term ENGINEER in our public relations campaign.

In contrast with the recent graduates, I have observed that it is not very easy to find a new position for an experienced engineer. This is highly paradoxical and quite disturbing. It seems as though employers are reluctant to hire experienced men, and they will rather hire recent graduates while these are available. In a case with which I am familiar, a civil engineer of several years of experience has made contacts for several months with engineering and construction firms that engage in foreign work, seeking a position with such firms. To this date the replies he has received have been discouraging and disconcerting—one would think that if there really is a shortage of engineers for service at home there would be a more acute shortage of engineers for service abroad.

PACIFICO MONTANO, P. E.,
W. Lafayette, Ind.

Welding Connectors

Saxe Welding Connection Units position and secure structural parts to be welded.

Clip K3A permits an adjustable connection.

These widely used units eliminate all hole punching, and, with welding, produce the most economical, safe, and quickly erected structural frame.

Write for 1951 edition, Structural Welding Practice Manual.

J. H. WILLIAMS & CO.
Buffalo 7, New York

AIR REDUCTION CANADA, LTD.
Montreal 2, Canada

NEXT MONTH

A Bigger 40-page Issue of The American Engineer.

DON'T MISS IT!

Post-Graduation and Refresher Courses

The shortage of engineers and scientists is forcing many men to assume wider responsibility. To enable such men to grasp the new technology involved—the different formulae and processes—International Correspondence Schools now have available a group of short, condensed POST GRADUATION AND REFRESHER COURSES.

These special courses cover most of the fields involved in the current activity and expansion. Texts are by outstanding authorities. They cover the latest practices and methods employed by leading companies. New methods and equipment are fully illustrated and explained.

This material is arranged especially for the busy engineer. You select just the subjects that will fit your particular need. You get the knowledge and training in the shortest possible time. These courses are tailor-made to fit individuals or selected groups of company employees.

For full information please use the convenient coupon below.

INTERNATIONAL
CORRESPONDENCE SCHOOLS
Box 2396, Scranton 9, Pa.

( ) Without obligation send me full information about your Post-Graduation and Refresher Courses on following subject.

( ) Also please send free copy of "How to Succeed" and information about ( ) "Employee Group Training."

Name .....

Address .....

City .....State.....

Occupation .....Company.....

Special tuition rates to members of the Armed Forces. Canadian residents send coupons to International Correspondence Schools Canadian, Ltd., Montreal, Canada.

Are Civil Engineers The Only Engineers Who Buy Concrete?

Not at all. A recent survey disclosed that *professional* engineers, representing all branches, *have many fields of business activity.*

Reach registered, professional engineers—leaders who *buy!*

American Engineer

Circulation: 27,000 professionals.

KENNEDY-RIEGGER DRILLING CO., Inc.

Diamond Drill & Core Borings

TEST BORINGS

5418 Post Road — New York City

Telephone KI 9-8458

AEROFIN

CORPORATION

Syracuse — New York

Professional News in Capsule Form

More Student Engineers in Canada • Greater New Orleans Expressway Planned • New NBS Lab Being Built in Colorado • NSPE Members in National Spotlight Government Engineering Standards Criticized • Other Items of Interest

Registration of first year engineering students at Canadian universities is 34 per cent higher for the 1952-53 school year than it was in 1951-52, according to an annual survey recently completed by the Engineering Institute of Canada. The increase is approximately 50 per cent higher than the figure of two years ago, the Institute also announced. The number of potential engineers in the Canadian graduating classes, however, is lower by 20 per cent this year as compared with the 1951-52 statistics, and a further reduction in the 1954 graduating classes is forecast by the survey. By 1955, however, a small upswing in the number of engineering graduates can be expected.

* * *

Frederick H. Zurmuhlen, a past vice president of NSPE, and New York City's Commissioner of Public Works since 1947, *has been elected a trustee of Manhattan College, his alma mater.*

It is within the realm of possibility that fires may be put out by the use of sound waves in the not-too-distant future, according to a statement made by John A. Neale, chief engineer of the National Board of Fire Underwriters, speaking before the Society of Fire Protection Engineers in Chicago. "I don't think it is too far-fetched to surmise," he remarked, "that current developments with high-powered sound and vibrations above audible range may lead to investigation of fire extinguishment by that means."

* * *

Louisiana authorities have recently awarded final contracts to the firm of Palmer & Baker, Inc., for the design of a $40,000,000 *vehicular bridge across the north-south length of Lake Ponchartrain, just outside of New Orleans. The bridge, when completed, will be the longest vehicular span in the world with a length of from* 22 *to* 24 *miles. It will be called the Greater New Orleans Expressway and will provide a much faster highway route between the New Orleans area and the north than any now in use.*

* * *

Construction has recently been started on a major laboratory at Boulder, Colorado, designed to house the National Bureau of Standards Central Radio Propagation Laboratory. Located on a 210-acre site south of the city near the University of Colorado campus, the new lab will contain complete modern facilities for research on the propagation of radio waves and on the expanded utilization of the radio spectrum now being used for FM, television, facsimile, and radar.

More than 70 persons engaged in related NBS research projects are already working in temporary quarters in the Boulder and Colorado Springs area; and it is expected that, by mid-1954, a staff of approximately 500, including both scientific and clerical personnel, will be at work in the completed Laboratory.

* * *

Dr. D. B. Steinman, an internationally eminent bridge engineer and the first president of NSPE, has been elected to the presidency of the New York Academy of Sciences. Dr. Steinman, who has designed and built more than 300 *bridges on five continents, is also the author of a number of well-known books and a member of many other professional societies and organizations.*

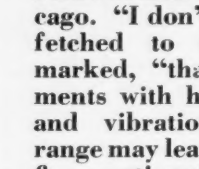
* * *

Reginald J. S. Pigott, president of the American Society of Mechanical engineers, recently leveled a barrage of criticism against Government engineering standards in an address at the opening luncheon at the 73rd annual meeting of the society. Mr. Pigott, who is professionally associated with the Gulf Research and Development Company of Pittsburgh as chief engineer, charged that policies in many engineering operations of the Government are not being made by competent engineers on the basis of full engineering data as they should be.

The expense and confusion caused by the overlapping of operations of such agencies as the Rural Electrification Administration, the Bureau of Reclamation, the Army Engineers, and a number of power authorities should also be corrected by the establishment of competent engineering authorities, Mr. Pigott stated.

ENGINEERS:

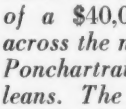
We've Got what you're Looking for!



T. H. Beck, Manager of Engineering. Is an engineering veteran of over 22 years in the aviation and related industries.

A secure future, exceptional opportunities for advancement, and a high starting salary await you at FAIRCHILD. We have openings right now for qualified engineers and designers in all phases of aircraft manufacturing; we need top-notch men to help us in our long-range military program: turning out the famous C-119 Flying Boxcar and other projects for the U.S. Air Force.

FAIRCHILD provides paid vacations and liberal health and life insurance coverage. We work a 5-day, 40-hour week as a base. Premium is paid when longer work week is scheduled.



ENGINE AND AIRPLANE CORPORATION
FAIRCHILD *Aircraft Division*
HAGERSTOWN, MARYLAND

New construction activity in 1953 is expected to reach a new peak, possibly rising about $1 billion over the 1952 apparent level of $32-1/3 billion, according to outlook estimates prepared jointly by the Labor Department's Bureau of Labor Statistics and the Building Materials Division of the Commerce Department.

The private construction peak is expected to be about $22.2 billion. It is estimated that commercial building activity will jump by over one-fourth in the new year, while private industrial building is expected to drop by about the same proportion. Increasing activity in public utility construction is expected for the tenth successive year, with most of the anticipated 11 per cent rise in the gas and electric light and power group. Highway construction will also probably reach a new high of about $3 billion, or nearly 10 per cent above the 1952 level, reflecting the expanding program of Federal aid to highway building and a large volume of State toll-road construction.

All Commerce and Labor Department estimates are based on the assumption that business in general will remain good, buoyed in part by defense expenditures, and that there will be no catastrophic international events to change the picture appreciably.

* * *

Andrey A. Potter, dean of engineering at Purdue University and a member of NSPE and the National Science Board, has been named to a special panel established to advise the National Science Foundation on policy questions connected with the recommendations of the President's Materials Policy Commission for development of the mineral resources of the United States.

* * *

One item being proposed in the new Federal Budget as submitted to Congress by President Truman, is a special billion-dollar fund to create a reserve of heavy machine tools and other production facilities to speed increased arms output in the event of a national war emergency. Outgoing Defense Mobilizer Henry H. Fowler, who announced the plan to the press, stated that the reserve of tools would cost less than a huge stockpile of arms and would prevent bottlenecks such as those experienced in the World War II mobilization period.

The machine tool plan is one feature of a program to establish a "mobilization base" of sufficient productive capacity for arms and other essential military supplies so that the nation's needs under total war conditions could be speedily filled. The plan was recommended by a special advisory committee on production equipment, headed by Harold S. Vance, chairman of the board of the Studebaker Corporation.

* * *

Major General George J. Nold, who has served as the Army's Deputy Chief of Engineers since June 1951, is scheduled to leave for a new assignment in Europe early in February, according to a Defense Department announcement. General Nold's new job will be to assume responsibility for organizing a central construction authority for France.

* * *

The ten-man commission recently appointed by out-going Defense Secretary Robert Lovett to investigate the Defense Department's use of manpower, has been endorsed by President-elect Eisenhower and requested to continue its work under the new Administration. Brigadier General David Sarnoff, chairman of the board of the Radio Corporation of America, heads the commission. Other members are: Rev. John J. Cavanaugh, former president of Notre Dame University; former Navy Undersecretary Artemus L. Gates; Board Chairman Clarence Francis of General Foods; Board Chairman Robert W. Johnson of Johnson & Johnson Corporation; C. R. Smith, president of American Airlines; New York financier Lewis L. Strauss; Admiral John H. Hoover, USN, retired; Major General Merritt A. Edson, USMC, retired; Major General St. Clair Street, USAF, retired; and Major General John B. Anderson, USA, retired.

* * *

A fleet of more than 700 units of mechanized equipment is being used this winter to keep New Jersey's 1750-mile state highway system free of ice and snow, according to a recent announcement by State Highway Commissioner Ransford J. Abbott. This equipment includes plows of various sizes, graders, and abrasive spreaders spotted at 145 key locations; a state-wide blizzard would call over 2,000 men into service to operate the equipment. In addition, the Highway Department has fitted 221 private contractors' trucks with snow plows; and, by special agreement, this supplemental fleet can be called into action whenever necessary.

* * *

After a two-year study by engineering experts, the United States-Canadian International Joint Commission has proposed a "face-lifting" for Niagara Falls that will lessen the flow of water and at the same time improve the appearance of the waterfall. The Commission's plan, which is being submitted to the respective governments for consideration, calls for a control dam 1,550 feet long built from the Canadian side a mile above the falls and also proposes dredging the Niagara River bottom just above the brink of the Horseshoe Falls. It is claimed that completion of the project would reduce the great speed with which the river is eating away the brink of the falls and would also make possible two vantage points on each tip of the horseshoe from which the falls could be viewed.

If approved soon, the project could be completed by 1956 it was asserted. No estimate of the cost that would be involved was announced.

(EDITOR'S NOTE: *All those desiring to list their meetings under Dates to Remember should send* COMPLETE *information, including date and place, directly to the American Engineer.*)

Executive Committee Meeting—January 11, Washington, D. C.

Idaho Society of Professional Engineers—Annual Meeting, January 16, 17. Hotel Boise, Boise, Idaho.

Texas Society of Professional Engineers—Annual Meeting, January 21, 24, Amarillo, Texas.

Oklahoma Society of Professional Engineers—Annual Meeting, February 6, 7. Biltmore Hotel, Oklahoma City, Oklahoma.

Alabama Society of Professional Engineers—Annual Meeting, February 22-28, (Engineers' Week), Birmingham, Alabama.

Minnesota Society of Professional Engineers—Annual Meeting, February 25, 26. Lowry Hotel, St. Paul, Minnesota.

Georgia Society of Professional Engineers—Annual Meeting, February 28. Ansley Hotel, Atlanta, Georgia.

—EDITORIAL—

The New Year Brings A Sense of Progress

IF it takes a generation to measure the success or failure of a set of actions, we can, at this time of the year when one reflects upon the passage of time, look back over the first eighteen years of N.S.P.E.'s life with a happy sense of progress.

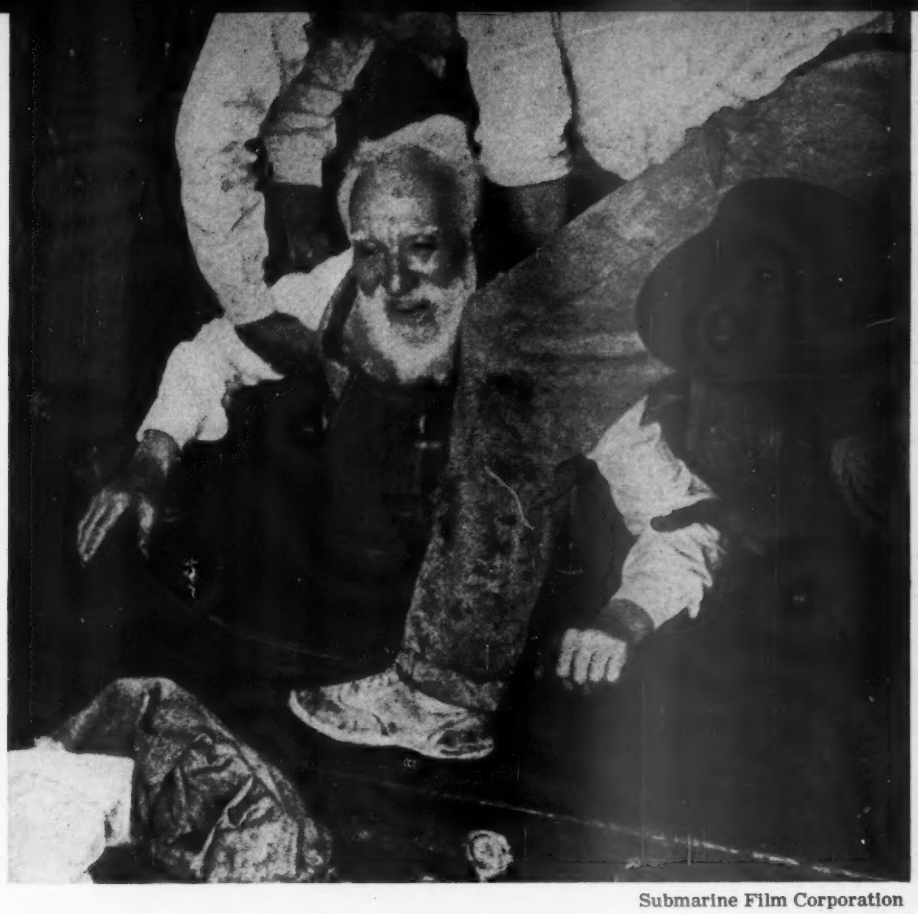
As we prepare to add still another bound volume of the *American Engineer* to the library shelf, we pause and, not without a surge of nostalgia, take down the book from the other end of the row, marked in gold, "1935." It's dusty, to be sure, but while turning the now slightly discolored pages, words that talked of real causes spring to life as though they were as new as 1953.

What were the causes that these early believers fought for, and what has happened to them? There are many, of course; too many to be dealt with here, but some cannot be ignored. Take registration. It is accepted now to the point where it holds only a minor place on our agenda of things to do. Yet it was the fight for decent registration laws *everywhere*, that gave N.S.P.E. the breath of life. Today the battle is virtually over with all states and the District of Columbia with registration laws.

Fear of an over-crowded profession? In 1935 eminent engineers worried and wrote about their colleagues who looked in vain for work, but they cautioned against bitterness and stressed the everlasting need for service. Today, responsible sources say the United States could use additional thousands of engineers—a demand that cannot be overcome for years. True, many things have contributed to this situation but it certainly can be said that the engineer by his great accomplishments and by his contributions to the nation, has actually created a land whose existence depends upon him. A result of casting bread on the waters.

OUR founders in 1935 fretted about the lack of recognition that seemed to plague the profession. An article title in the April issue of the *American Engineer* of that year, read this way: "A Nation's Folly—Billions for Work, Nothing for Plans." And the sub-head: "Confusion, Waste, Failure, Result from Ignoring Engineer." Is it better today? Yes. Not perfect by any means, but definitely better. General Eisenhower has two engineers in his cabinet. The Atomic Energy Commission. to mention only one important agency, had, until recently, two Truman appointed engineers as members. Yes, progress is made. The wheels sometimes seem to stand without a turn, and, indeed, may even appear to move backwards, but the forward progress is there when one takes a long look.

So with the gift of another new year in our hands, the engineering profession can go forward encouraged by past successes, forward into the brilliant promise of the future.



Submarine Film Corporation

At Nassau in the Bahamas in the early 1920's, Dr. Alexander Graham Bell, inventor of the telephone and trustee of the National Geographic Society, descended in a submarine tube to study sea life 40 feet down on a coral reef. His friend, Charles Williamson, originated the device—a flexible tube with an observation chamber at the bottom.

THERE'S ENGINEERING IN EXPLORATION!

BY GILBERT GROSVENOR

President, The National Geographic Society

The Distinguished President of The National Geographic Society Gives Some Fascinating Accounts of Instances In Which Engineering Skill and Innovation Helped in the Major Expeditions the Society Has Sponsored.

I AM happy to accept the invitation of the editor of THE AMERICAN ENGINEER to tell you something about engineering problems in geographic exploration.

In my opinion, it is an interesting subject and one which has not been developed before. It illustrates the point, I believe, that engineering is involved in about everything.

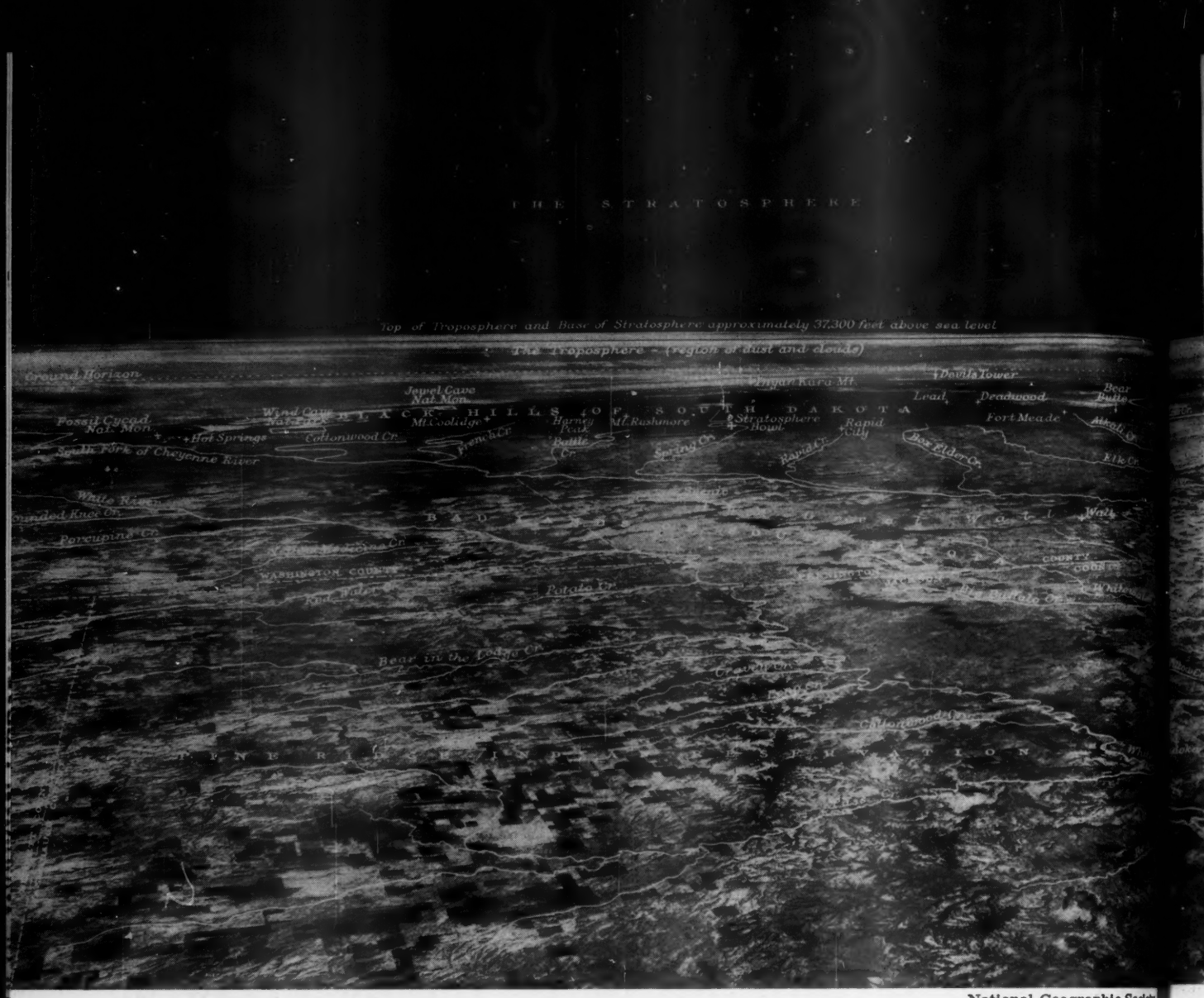
In the 53 years during which I have been connected with it, the National Geographic Society has sponsored more than 130 major scientific expeditions (and innumerable minor ones) which, at the time, have gone higher in the sky, and deeper into the ocean than man had ever ventured before. The National Geographic Society's flag was with Peary at the North Pole and with Byrd at the North and South Poles. It soared to the highest altitude ever attained by man in a free balloon, 13.71 miles into the stratosphere, in 1935. It was with Dr. William Beebe in 1934, when he descended 3,028 feet into the sea.

In one of scores of archeological expeditions completely or partially sponsored by the National Geographic Society, an expedition led by Dr. Matthew Stirling into the dense Mexican jungle discovered the oldest dated work of man yet found in the New World, a stone slab bearing a Maya date interpreted as November 4, 291 B. C.

The very first expedition sponsored by the Society in 1890 discovered Mount Logan, the second highest peak in North America.

The point of mentioning these journeys is to invite your attention to the fact that exploration inevitably carries with it the need for special equipment which must be devised to meet the extreme and unusual conditions the expedition must face.

Sometimes these devices produced by the engineers,



National Geographic Society

This "top-flight" view is one of the most remarkable photographs ever made. It was taken November 11, 1935, from the National Geographic Society-Army Air Forces stratosphere balloon, "Explorer II," more than 13 miles above the plains of South Dakota, and shows the curvature of the earth. A straight black line has been drawn on the picture to bring out the curvature.

scientists and technicians on our expeditions turn out to have value far greater than anyone ever dreamed of when they were designed. Take the role of the National Geographic Society in the amphibious vehicle, the Duck, for example.

In the Pavlof Volcano Expedition of 1928 an amphibious "mobile boat" which would travel both on land and water was desperately needed. No such device existed at that time. Scientists, engineers and technicians of the National Geographic Society, under the leadership of Dr. Thomas A. Jagger, a distinguished volcanologist, created such a craft which they named the *Honukai*.

It was 21 feet long, equipped with a Ford engine, twin screws, a worm truck drive, and double rear tires. The enclosed body had airtight compartments fore and aft.

The *Honukai* proved itself in Alaskan waters. Using it constantly, Dr. Jagger was able to explore and map 2,500 miles of territory. At the close of the expedition, he took the craft to Hawaii.

WHEN World War II erupted, early in the conflict the Joint Chiefs of Staff sought a vehicle that could travel on both land and water. The Army sent engineering experts to Honolulu to study the *Honukai*, and to confer with Dr. Jagger on the principles of its construction. Thus the Society's *Honukai* became the forerunner of the famous Army DUKW, soon changed by GI slang to "Duck."

There are other examples of devices engineered exclusively for exploration which have proved their value in other fields. A case in point is the development of the Bumstead Sun Compass. The compass was designed as an aid to aerial navigation in the Arctic for use on the plane of Lieutenant Commander (now Rear Admiral, retired) Richard E. Byrd. Commander Byrd was then, in 1925, chief of the U. S. Naval Aviation Arctic Unit which accompanied the National Geographic Society's MacMillan Arctic Expedition of that year.

Navigation near the North Pole in those days presented difficulties. The magnetic compass became wholly unreliable because of the close proximity of the Magnetic North Pole. The sun compass was designed especially to meet this problem by the late Albert H. Bumstead, Chief Cartographer of the National Geographic Society. The important astro compass, developed during World War II was an outgrowth of this compass.

A recent development which I predict will have wide application is the aqualung, a strange device which permits men to swim free and unfettered hundreds of feet beneath the ocean.

Looking like something described in a science-fiction

National Geographic Society

Gondola of National Geographic Society-Army Air Corps Stratosphere Flight, tipped on its side just after landing in a pasture near White Lake, S. D. Captain Albert W. Stevens, commander of the flight is shown at the right re moving instruments through a porthole.

Lt. Comdr. (now Rear Adm., Ret.) Richard E. Byrd with Bumstead Sun compass on MacMillan Arctic Expedition of 1925.

National Geographic Society

novel, the aqualung will be used on a four-year, round-the-world expedition sponsored by the National Geographic Society to study life in most of the world's oceans. The device was perfected by Explorer Captain Jacques-Yves Cousteau with the aid of a brilliant Parisian engineer, Emile Gagnan, of Air. Liquide Cie., France's largest commercial gas firm.

A comparatively simple device, the aqualung consists essentially of three tubes of compressed air mounted on the diver's back with intake and exhaust tubes leading to a mouthpiece. There is a special regulator valve which automatically feeds compressed air to the mouthpiece in ratio to the diver's depth.

Until the development of the aqualung, divers were limited in the depths to which they could descend by the tremendous pressures of the ocean. Now, however, the deeper the diver goes, within limits, the higher the pressure of the compressed air forced into his body by the aqualung. The special regulator valve keeps the pressure inside the diver's body equal to the pressure outside. He feels no more discomfort under enormous pressures than does a fish.

For example, suppose the diver is swimming at a depth of 132 feet. (A shallow depth for divers using the aqua-

National Geographic Society

The Honukai, forerunner of Army Duck, designed for Pavlof Volcano expedition of 1928. The Ducks proved to be one of the most effective machines in use during World War II.

lung. The world's record for a dive with it is 397 feet.) The pressure outside his body is 74 pounds per square inch—but so is the pressure inside his body.

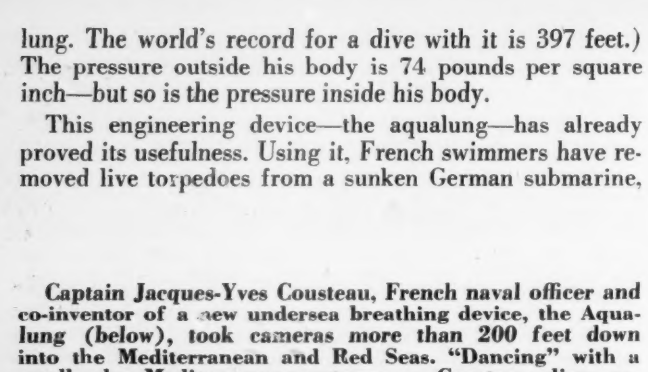
This engineering device—the aqualung—has already proved its usefulness. Using it, French swimmers have removed live torpedoes from a sunken German submarine, discovered sand quarries under the sea for use in construction, and with cameras it literally opens up a whole new world to the vista of man. Divers using the aqualung can stay underwater more than an hour.

Engineering has played an important role in other expeditions sponsored by the National Geographic Society —mainly in the design of special equipment necessary for the success of the expedition.

Engineering has much in common with surveying and mapping. A source of pride to the National Geographic Society is the fact that its maps have become standard reference tools virtually around the world. The nation's three leading news services, the Associated Press, the United Press, and the International News Service use the Society's spelling of place names as a standard. The United States Armed Forces use National Geographic maps and many a World War II campaign was plotted on maps supplied by the Society.

Captain Jacques-Yves Cousteau, French naval officer and co-inventor of a new undersea breathing device, the Aqualung (below), took cameras more than 200 feet down into the Mediterranean and Red Seas. "Dancing" with a small, shy Mediterranean octopus, a Cousteau diver refutes imagination's tales of nightmarish devilfish. Captain Cousteau will lead a 4-year National Geographic Society expedition to study undersea life.

National Geographic Society



ONE of the letters the Society treasures is from Fleet Admiral Chester W. Nimitz. It relates how, during the early dark days of World War II, the Admiral and his party were on a flight to Guadalcanal, then completely in the hands of the enemy except for the airstrip held by United States Marines.

In a heavy storm, the pilot lost his way and the only map he had was a small scale chart showing only the larger islands of the Solomon group. Fortunately, a Marine aide to Admiral Nimitz was carrying a National Geographic Society map of the area which showed all the islands, small as well as large.

Using the Society's map the party was able to find its position and land safely at Guadalcanal airstrip. "The National Geographic Society lent an unexpected but most welcome helping hand," Admiral Nimitz later wrote to me in recalling the event.

I wish it were possible for every member of the National Society of Professional Engineers to see our Cartographic Department. I think you would be both interested and surprised. A vast amount of research is necessary before a single line can be drawn. The Society has issued scores of maps covering the entire world. Mapping the globe is, of course, a never-ending task because cultural and political changes require constant revisions.

National Geographic Society

Dr. Victor Ben Meen, Toronto geologist and leader of the 1951 National Geographic Society-Royal Ontario Museum Expedition to Chubb Crater, with Dr. I. W. Jones, stands on boulder-strewn rim of the two-mile-wide, lake-filled scar in the sub-arctic granite which Dr. Meen's group found was caused by the crash of a meteor, some 30 to 150 centuries ago.

Another mapping program the Society is undertaking, in which engineering, both in the design of equipment, and in conception, is playing an important part is the "Sky Survey" undertaken in cooperation with the California Institute of Technology.

This project began in 1949 and is a systematic survey of the heavens with Palomar Observatory's 48-inch Schmidt telescopic camera. The end result of this four-year project will be a sky atlas of 1,870 photographs showing celestial objects to a depth in space of some 300 million light years.

It is anticipated that this atlas will provide a guide for astronomers' research for perhaps a century to come. Objects recorded for the first time in the course of this sky mapping range from tiny planetoids in our own solar system to a thousand clusters of nebulae infinitely far out in space.

The Schmidt camera which makes the survey possible is a masterpiece of engineering. A major problem besetting astronomers in the 1920's when the late Bernard Schmidt began his experiments with the camera was how to obtain telescopic photographs that would give uniformly sharp and undistorted images everywhere on a negative.

THE best methods then in use would produce good pictures in the middle of a plate, but the images of heavenly bodies became increasingly distorted the farther away from the center they occurred. Schmidt introduced a "correcting plate" or lens, through which light passed upon entering a telescope. This lens bent the light rays so that they struck the telescope's mirror at the bottom of the tube in such a manner that all rays would focus with uniform fidelity on a photographic plate.

The National Geographic Society has inspired many advances in the art of photography, especially color photography, as an incident to the reporting in its magazine of various expeditions which it has sponsored.

In these days, when thirty minutes after an important event occurs anywhere in the world a photograph of it may appear in our local newspaper, it is hard to believe that the arts of modern photography and photoengraving were just beginning in 1899.

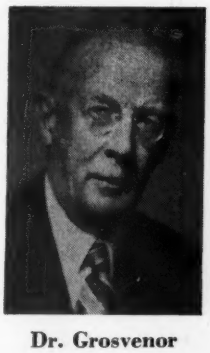
The National Geographic Magazine pioneered in the development of a great deal of photographic equipment which engineers spent considerable time designing. Much engineering thought went into the special color presses developed for our magazine.

When my father-in-law, Dr. Alexander Graham Bell, induced me to accept the editorship of the National Geographic Magazine in 1899, the Society's membership was so small that I could carry the entire edition of the magazine on my back. Today, a single issue would form a pile more than ten miles high and the ink alone weighs 25 tons—as much as 330 men could carry. We published the first natural-color photographs from the air of the North and South Poles and the first natural-color underseas photographs.

Without belaboring the point, it is enough to say that the National Geographic Society owes a great deal to the genius of the engineer and has been quick to make use of increases in engineering knowledge as they have developed down through the years.—***End.***

About the Author . . .

Dr. Gilbert Hovey Grosvenor, the author of this article, has had a long and distinguished career in association with the National Geographic Society and is world-famed among geographers and explorers as well as in literary and editorial circles. He has been editor-in-chief of the *National Geographic Magazine* since 1903 and president of the Society since 1920.



Dr. Grosvenor

He was born in Constantinople in 1875 and received his early education in the preparatory department of Robert College there before returning to the United States where he finished his preliminary training and then entered Amherst College from which he received A.B., A.M., and Litt.D. degrees. He has also received degrees from many other leading United States' universities and is a member of Phi Beta Kappa.

Dr. Grosvenor belongs to numerous geographic and scientific societies in this country and has been accorded honorary membership in the geographic societies of many foreign countries. He has received many awards and honors, including the French Legion of Honor and the Norwegian Cross of St. Olav.

His country home, "Wild Acres," at Bethesda, Md., is regarded as a bird paradise; and Grosvenor Lake in Alaska and the Gilbert Grosvenor Range in Antartica have been named in his honor.

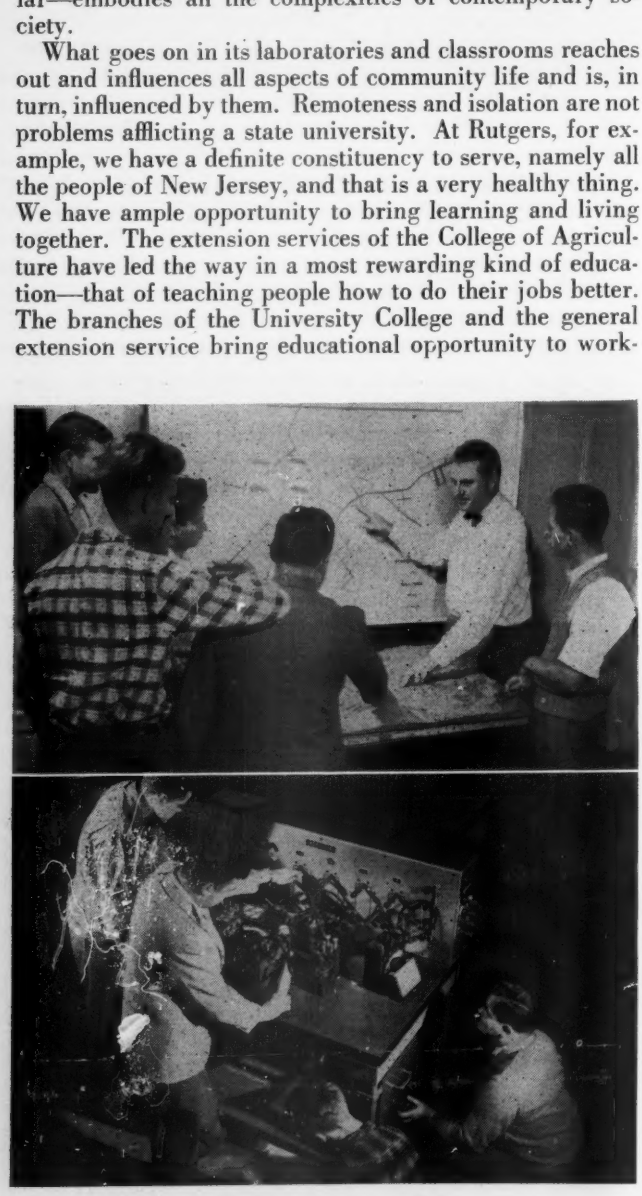
The Role of the State University In Progress and Development

Dr. Lewis Webster Jones

President of Rutgers University,
The State University of New Jersey

WE are living today in perilous times when the great tradition of freedom is being challenged throughout the world. The frontiers we must explore, chart, and conquer are subtle and difficult. We are engaged in a war of ideas and of moral values. And in this conflict the free universities of the world are among the standard-bearers because a university—and the state university in particular—embodies all the complexities of contemporary society.

What goes on in its laboratories and classrooms reaches out and influences all aspects of community life and is, in turn, influenced by them. Remoteness and isolation are not problems afflicting a state university. At Rutgers, for example, we have a definite constituency to serve, namely all the people of New Jersey, and that is a very healthy thing. We have ample opportunity to bring learning and living together. The extension services of the College of Agriculture have led the way in a most rewarding kind of education—that of teaching people how to do their jobs better. The branches of the University College and the general extension service bring educational opportunity to working men and women throughout the state.



Above: A class in planning at the State University of New Jersey watches as Professor Wilkens explains the relationship between the map of a proposed imaginary development in Milltown, N. J., and a topographical map of the same area. Below: Electrical Engineering students at the State University conduct experiment in modern dynamo laboratory newly-opened in the Rutgers University College of Engineering.

What is true of ours should also be true, generally speaking, of any state university. The more we can relate our academic studies to the solution of actual problems of community life and work, the more effective will education become; so that the fact that a state university offers its facilities to any individuals or groups requiring help with some immediate practical problem is not an interruption, but rather an enrichment of its educational program.

The first duty of such a university is, of course, to provide educational opportunity to all who have the ability and desire to learn. Equality of opportunity is the guiding ideal of American democracy. It is not yet achieved, but our aim should be to approach it more and more closely. We need a great diversity of talents and skills to man our complex productive system and to strengthen our national and community life. We can't afford to waste our potential human resources by neglecting to cultivate them. It is imperative, therefore, that we find ways of increasing scholarship aid to the thousands of qualified young people who cannot go to college without it.

The state university must also be truly universal in its hospitality to individuals of all races and religions, to both men and women, to the old as well as the young. The only requirement should be that they want to learn something which we can teach. We cannot of course teach everybody everything. But we must take all knowledge, whether practical or theoretical, to be our province. We must strive to make education available to all who wish to learn and to make operative, in the daily affairs of living, all the knowledge and wisdom we can muster or foster for the benefit of the people.

I should also like to see the state university, in its extension services, offer some courses which would be open only to that growing but neglected group—the people over sixty. And I believe that there should be an expansion of extension services to people of all ages, with emphasis on the arts, philosophy, and history, as well as on vocational subjects. We shall begin to be a much wiser nation when we cease to think of the diploma as the mark of a completed education. Education is never completed if it has "taken" at all.

ANOTHER point deserving of emphasis is that the university should not be thought of only in specialized compartments, benefiting only particular groups. City lawyers and engineers should remember that they gain from the work of a college of agriculture, and farmers should recognize that political science is important to them. I also sincerely recommend that the citizens as a whole form themselves into a "pressure group" in support of the humanities and the arts, which bring in no direct revenue to any special class of people, but which are essential to the education of students in every field.

The discovery of new knowledge is another essential function of the university. Our dynamic civilization is uniquely dependent on research. We can look forward to increasing productivity only if we increase technical competence; there are no new physical frontiers, no new

natural resources to exploit. We have to create new resources. As has often been pointed out, we have to learn how to make more and more out of less and less, or to make two blades of grass grow where one grew before.

But we cannot limit ourselves to applied research, and there is danger in relying for its support on contracts with government, or with private groups desiring practical results. It is essential that we carry on the basic research, for much of which we have in the past relied on Europe. The continuing search for truth is the life-giving principle without which both practical research and teaching will wither. There is in fact no sharp dividing line between pure and applied science.

In research, as in teaching and learning, we are dealing always with individuals. Modern science is sometimes erroneously thought of as an impersonal force grinding out new discoveries more or less by itself. It does indeed require elaborate equipment, beyond the resources of any individual, but it is neither automatic nor impersonal. Discovery is always the product of people working and thinking.

The University must provide the material facilities, the opportunity for cooperative teamwork; even more important, it must provide the freedom in which the creative imagination of individuals can function, not only in the sciences, but in the humanities and the arts as well.

Knowledge is not static and inert; it does not reside in laboratories or libraries, but in educated minds. Education is not a standardized product accurately measured in semester-hours; it is an achievement of individuals. There is no such thing as a mass mind. The relation between teacher and student is often far more important than the content of a course.

Knowedge should result in judgment, and the much-talked-of liberal values have to become values-in-action; otherwise they become merely piety, when what we need is active virtue. Neither science nor any other branch of knowledge is an isolated phenomenon, with the moral neutrality of a tree. All have to be taught by individuals, and understood by individuals. The sciences and the humanities both must be illuminated by a sense of their humane purposes.

The great strength of a free society is that it can correct its mistakes. The universities must now put first the education of young men and women as persons and citizens, recognizing that their training as competent technicians is necessary, but of secondary importance. Techniques have only a derivative value, as they serve human purposes. It is the purposes that we must keep in the forefront of our consciousness. As Aristotle expressed it in his *Politics*: "We ought to choose war for the sake of peace, and business for the sake of leisure, and what is useful for the sake of what is fine. These are the aims we have to keep in view in the education of children and people of every age who require education."

Democracy means a leveling upward towards the standards set by the best men, not a leveling downwards toward mediocrity. Education is our main resource in bringing about this general upgrading. The outside threat is no greater today than the threat our forefathers faced; materially we are infinitely stronger than they were; and the prospects before us are even more exciting.

The outstanding issue before us is: how are we going to use our magnificent technical achievements? If atomic energy could destroy us, it also offers the hope of bringing a more truly human existence within the reach of the half-starved populations of the world. That hope must be the basis of American leadership, backed by American economic productivity. We cannot lead with our heads turned backward, or with our minds only on defending past gains.

Dr. Selman A. Waksman, director of the Institute of Microbiology and discoverer of streptomycin and neomycin, examines experimental culture in a rack of a shaking machine used to speed the development of microbial growth.

We need a positive affirmation of the moral principles on which this republic was founded, a positive determination to realize them in practice through the use of our technical skills.

The challenge thus squarely before us is as inspiring as that which our forefathers accepted with courage and faith in establishing the United States as a free nation. In facing it, the university occupies a position of strategic importance, and of great responsibility. It can be said to embody our highest aspirations, our hope of material and moral progress.

The relationship between the citizens and their various state universities will become increasingly close and complex, increasingly rewarding to both. It is our job to do our share in providing the productivity, both material and moral, which is needed to strengthen the free world.—***End.***

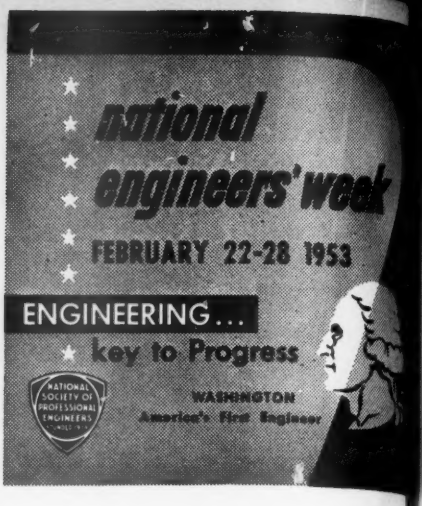
About the Author . . .

Dr. Lewis Webster Jones, who is now serving as the fifteenth president of Rutgers, has long been prominent in educational circles. In addition to his present post, he has also served as president of both Bennington College and the University of Arkansas. He is a member of numerous boards and commissions, including The President's Water Resources Policy Commission and the Board of Foreign Scholarships. He received his own education at Reed College, the Graduate School of Columbia University, and the Robert Brookings Graduate School of Economics and Government, and he is a member of the Phi Beta Kappa, Phi Eta Sigma, and Omega Delta Kappa honorary fraternities.

Dr. Jones

Memo to Engineers' Week Chairmen . . .

Time to Gild the Lily



Dear Engineers' Week Committee Chairmen:

National Engineers' Week is next month, February 22-28. Your program should be rolling by this time. If you have contacted your local papers, arranged for radio and TV shows, made plans for a chapter organizational meeting, and taken the other obvious steps that make for good promotion, *you are ready to gild the lily!*

Now you can really put your imagination to work and do the things that are out of the ordinary. You can do things that involve *fresh* ideas—ideas that will intrigue people and perk up their interest in you and your Chapter.

Enclosed in the promotion kit that was sent to your Chapter President is a reprint of an AMERICAN ENGINEER story reporting Engineers' Week, 1952. Read this article. Find out what hundreds of other State Societies and Chapters did last year to observe EW. There are ideas galore and you can put many of them to work right in your own town.

Another reminder: Enclosed in the Kit is a sample Governor's Proclamation. Get your State Governor (if you are a State Society official), or your mayor or city manager (if you are a chapter official) to give you a similar proclamation. *Make use of the document in your publicity.*

A Special Program

NSPE's Special Public Relations program, which has been in operation since 1951, has been conducted as Executive Research Surveys. Thus far, surveys have been taken among 500 leading industries on the subjects of "How To Improve Engineering Management Communications," and "The Improved Utilization of Engineering Manpower." **Make use of these two fine reports during engineers' week.**

Why not hold a special discussion-type meeting during the week? The reports are available to members for $1.00 each (see page 31) and they could form the focal point of your meeting. Invite local industrialists to discuss with your Chapter officials the contents of the reports. They will be amazed at the wealth of material in the two books, and your members will also derive much from the discussions.

Too, the meeting can make top notch publicity for your Chapter. **But arrange the meeting carefully. Invite industrialists who will "give a good show."** Also, choose Chapter men to participate who have had some experience in panel-type programs and who can "keep things going" conversationally.

Good luck on your meeting and don't forget to get news of it to your newspapers, and how about asking the local radio station if they would like to broadcast the proceedings?

Other Meetings and Activities

Important speakers are usually more than willing to address a professional group and such speakers are not only valuable from a standpoint of audience interest, but their interest in the professional engineer is certainly to be encouraged. A *dinner meeting* is usually better if you plan to have such speakers as bankers, city officials, et cetera, because more time is available for the meal, and a more festive, informal atmosphere is usually associated with a night function.

Some Chapters have found it valuable to hold special meetings and take in local officials or business men as honorary Chapter members. Such a plan will undoubtedly assure you of a good speaker, in this case the recipient of the award, as well as an opportunity for some excellent publicity.

If it is not your Chapter's policy to award honorary memberships, you can give an award to a local civic, business or professional leader who has contributed most to the profession in your community. The award itself need not be elaborate—a certificate or a small plaque will serve.

Don't overlook the ladies in your Special Projects plans for Engineers' Week. If your Chapter has an Auxiliary, they can certainly help out with plans for the Week. If you do not have an Auxiliary, make sure the ladies are invited to your *big special* meeting. Also, wives can address their women's clubs on various aspects of engineering (non-technical) or the lives of famous engineers, as most men are reluctant to address an all-feminine audience. Wives can also help in assembling displays, and in general help to spread the word of the engineering profession's importance.

Encourage members who have not already done so to get the professional engineer auto plaque before Engineers' Week. The display of these auto emblems will furnish your Chapter with additional professional publicity. The emblems are available from National Headquarters for $2.50 each.

Last year several Chapters made special gift donations to local organizations, which not only secured goodwill from these groups, but helped the Chapters to secure publicity. For example, one Chapter donated several books on engineering and related topics to the local library. The donation itself need not be expensive, and there are many gifts along these lines that can help your community to become better acquainted with the professional engineer.

Whatever activities you may plan as Special Projects for Engineers' Week, make sure that you plan far enough ahead so that they are smoothly developed in time for Engineers' Week. A good idea can be ruined by last minute planning and poor execution. Start now to map out your approach to the various activities and assure your Chapter of an interesting and valuable Engineers' Week celebration.

Gummed labels of the 1953 Engineers' Week seal are included in the kit. Use them on letters, programs, etc. If you need more, a limited supply are available from Headquarters, NSPE.

Remember, National Engineers' Week is *your* week. It's your major public relations effort of the year. Do a good job!

Good luck and good public relations.

Professionally yours,
W. E. PERRY, P. E.,
Chairman, National
Engineers' Week
Committee.

Having Engineers' Week Radio Troubles?

HERE'S HOW TO SOLVE THEM IN A HURRY!

Radio offers you your No. 1 means of reaching great masses of people with your Engineers' Week message—DON'T FAIL TO MAKE ALL POSSIBLE USE OF IT THIS YEAR. But, you say, radio shows take a lot of time to prepare and cost a lot of money. Not so if you use the COUPON BELOW TO ORDER THEM DIRECTLY FROM NSPE.

These Professionally Written and Produced Shows Are Available to You!

1. 15-MINUTE RADIO SHOW ON TAPE

This radio show features NSPE members GENERAL BREHON B. SOMERVELL, World War II leader, and now President, The Koppers Company; NSPE's First President and eminent bridge engineer, DAVID B. STEINMAN; and CHARLES M. NOBLE, outstanding highway engineer and Chief Engineer, New Jersey Turnpike Authority. Short talks by these three men are woven together by dramatic continuity portraying the engineer's contribution to our lives. *The show is complete, already on tape.* IT IS GUARANTEED OF THE HIGHEST BROADCAST QUALITY. GET YOURS NOW. The cost is only $6.00 for the tape.

2. TWO RADIO SCRIPTS OFFERED

Would you like to use local talent to put on your own radio* show? NSPE offers two fifteen-minute scripts to help you. Provided without cost to you, one script is entitled "The Dream Builder" and uses Washington's days as an engineer as its theme. The other, "The Leap in the Dark," is the dramatic story of the Roeblings—builders of the Brooklyn Bridge. BOTH FREE, BOTH DELIGHTFUL STORIES—ORDER YOURS NOW.

*Could be used for live *TV production* also.

Mail Coupon Now for Your Radio Material

National Society of Professional Engineers
1121 Fifteenth Street, N.W.
Washington 5, D. C.

Sirs:

Rush me the radio shows indicated below. I enclose a (check .....) (money order .....) in the amount of $.....

- ☐ 15-Minute Radio Show on Tape. Price $6.00 per tape.
- ☐ 15-Minute Radio Script "The Dream Builder." Free.
- ☐ 15-Minute Radio Script "Leap in the Dark." Free.

Name .....

Address .....

City .....*State*.....

THE ENGINEER . . . Homefront Specialist

BY MRS. FRANCES T. KIRKWOOD

IT'S really his own fault, as any wife will gladly explain, when an engineer has occupational difficulty on the domestic front. Other professional men, she will point out, are, in general, content to specialize in one field, divorcing home from business as much as possible and letting dear Ermintrude manage the former without interference. But an engineer is the original Fix-it Man, born with an unquenchable eagerness to attack problems, and broadly educated to solve them. Home, for him, is therefore merely an extension of his office, and he likes nothing better than to double as a plumber, electrician, carpenter, bricklayer, or what have you. All of which would be just dandy, except that he is likewise, by both inclination and training, a perfectionist. There, my friends, is the rub!

The apartment is small, for instance, and the furniture has been fitted in with a shoehorn. But one morning, for no special reason, Ermintrude finds the arrangement intolerable. All day she broods. During dinner, if not before, she announces she has a wonderful idea and now is the time. Having measured the space in the first place, he knows her plan can't possibly work. Still, to humor her, he once more gets out his tape. "See?" he says pleasantly. "You can't move the desk and chair over here, because there's no other spot for the davenport."

She refuses, however, to believe him or her own eyes. "There must be some way," she insists, glaring at the davenport as if looks could shrink it to a loveseat. "If we put the table in that corner, and the bookcase between the window and the . . . " She abandons that line as impracticable and begins another.

After a while, still pleasantly, he says, "Look. I'll demonstrate. While you've been talking, I've sketched the room to scale. These pieces of paper represent the furniture. They're also to scale." He moves the papers into position. "This is the way we have it. I'll bet you a soda it can't be done otherwise."

In time, it will be one of the stories she likes to recount, and will be greeted by appreciative laughter. "Paper dolls at my age!" she'll say. "Wasn't that just like him? I should have known better than to argue with a slide-rule genius." She'll tell about how stubbornly she tried and how furious she became, and all for nothing. Then she'll add plaintively, "Aren't engineers *ever* wrong?"

IT is this accuracy which Ermintrude often finds so appalling, even though she knows that, without it, he might be a salesman or a merchant or a cab driver, but never an engineer. He has trained his mind to exactness in every detail, knowing there can be no shoddy stop-gaps, no second guessing, in the building of a bridge, a power plant, a dam, a super-highway. Day after day, he checks and double-checks specifications, blueprints, materials, workmanship, until anything less than perfection becomes actu-

ally abhorent to him, and time, though important, becomes secondary. He then applies this same technique at home, forgetting that Ermintrude is fundamentally an opportunist, preferring today's reality to tomorrow's dream and possessed by a terrible impatience to get things done *now*.

Take the redecorating of the bedroom. In a doctor's household, or a lawyer's, this would be a simple matter of the wife calling in a painter and telling him what she wants. But Ermintrude tried that once, and sadly remembers his hurt feelings over not being consulted, his dissatisfaction with the results, and his atomic reaction to what he considered unnecessary expense. So she mentions it, and he vaguely agrees it should be done. She mentions it again, but he's going out of town. By the fifth time, restive over her so-called nagging, he says, "All right, all right! I said I'd do it, didn't I? But when have I had time? Tell me that!"

LATER on he, too, will have a story to tell. "Know what my clever gal did?" he'll say. "Let me think she'd given up the idea, and then, when I was on a five-day trip, papered and painted the whole darn room herself." Being a nice guy, and secretly pleased that the affair is finally settled, he won't add that some of the painting made him shudder or that papering is definitely not her forte. But he will always wonder why she was in such a hurry and why she was quite so careless.

Nor, since an engineer is the world's best hoarder, will he ever understand her periodic yen to get rid of what he considers treasure and she calls junk. To his mind, no vagrant screw is too small, no half-used can of paint too old, no piece of pipe too short or bent to be saved. When the piano wheezes its last, he takes it apart with loving care, and gloats over each strand of wire. If an appliance is replaced, the old one is cherished for its spare parts. He is sure that sometime, somewhere, in his odd-jobbing, he will have sudden use for just such salvage, and it's a matter of pride to be prepared for any emergency.

And he is so often justified, as he happily builds a barbecue oven with bricks from the remodeled porch, or chops some old crates into sturdy tomato stakes, or repairs the attic fan with the motor from the long-gone washing machine.

YET, despite many such incontestable demonstrations, there inevitably comes a Sunday when he wakens to the sound of strange voices in the house, and discovers, to his horror, that a couple of cars and a light truck or two are parked at the curb.

"But, honey," Ermintrude protests, when he confronts her, "I told you earlier in the week I was going to put an ad in the paper." She laughs gaily. "People started phoning at six, and I've been busy as a bird dog. Remember the old ice cream freezer? I sold it for . . . "

"Sold it!" he yelps. "We'll be sued! Why, the wooden bucket was falling apart, and the crank was rusted tight."

"No, they weren't," she says smoothly, "because yesterday I twisted two pieces of your heavy copper wire around the bucket, and poured salad oil into the crank. I explained, but the woman said . . . "

Grim and helpless, he watches the merry looting. Salad oil and hard-to-get copper wire. The disgrace of it! Junior's old bicycle, a broken radio, and a roll of perfectly good fencing. Has the woman no sense at all? The toaster he'd promised to fix, and the battered lamp whose cord he'd planned to use. His life's blood, that's what it is, and all in the name of efficiency. Efficiency indeed! How can a man police the homefront without the proper tools? Never again can he trust her!

Eventually, however, this likewise becomes merely another story, because he has meanwhile had other troubles with Ermintrude. He is accustomed to dealing with people who speak the same language, who understand the terms he uses and something of the project at hand. But Ermintrude doesn't know a split rivet from a T-square, or electric conduit from corrugated transite, let alone how to go about mixing concrete or repairing a furnace. Add to this her tremendous bump of curiosity and her agile tongue, and she is obviously not the ideal helper. Yet some chores require a second pair of hands, and she is both so available and so eager that he puts her to work. He should know better.

HE has decided to add more insulation in the attic, which is merely a narrow space under the roof and completely dark. Having hauled the bulky material through the trap door, he has stationed Ermintrude at the top of the ladder with a flashlight, and has gingerly crawled to the far corner to begin his work. He is making good progress when, suddenly, the light disappears. Afraid to move, and angrier by the second, he holds his cramped position. "Sorry," she says, eons later. "The Smith's baby is due, you know, so when I thought I heard someone calling . . . But it wasn't anything, after all."

Or they're putting in a new front walk, and she has been a well trained robot for more than an hour. But it's turning out to be a bigger task than he anticipated. Completely forgetting her existence, he is wildly figuring whether he has enough concrete or should order more immediately, when she says, right at his elbow, "Are you giving it a rough or smooth finish?" Instantly, his mental arithmetic is gone—swoosh—and the slate is blank.

MAYBE the plumbing goes haywire, and she brings him a pair of pliers when he asks for a pipe wrench. Perhaps he has the garden beautifully planned, and she, thinking to be helpful, puts in several wavering rows of beans to spoil its symmetry. Or, crowning blow of all, maybe she elects to straighten up his work bench.

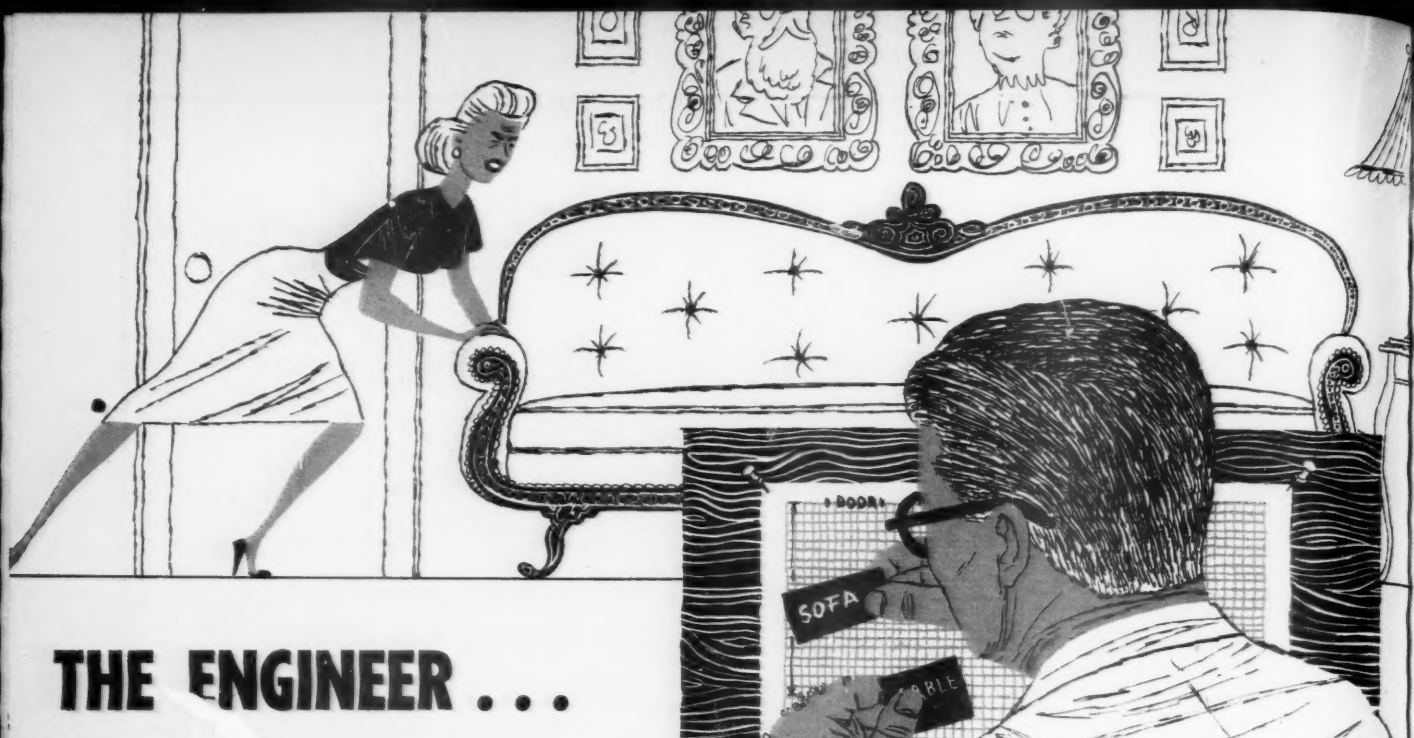
Whatever it is, and the list is endless, Ermintrude will go on giving him trouble for all their years, meanwhile wondering why this otherwise attractive man should be so hard to please. And he, the perfectionist, the homefront specialist, will ask himself why other professional men have such easy lives.—***End.***

About the Author . . .

Mrs. Kirkwood, right above, who has done some writing off and on for many years, is the wife of Engineer A. C. Kirkwood, prominent member of the Missouri SPE and NSPE. She has this to say about herself:

Born and reared in Colorado Springs, I graduated from Colorado College and, because Father grew volcanic over my yen for the stage, was sent to Radcliffe to get a Master's degree or else. While there, I snared (his version) or was snared by (my ditto) a smart young Stanford-M.I.T. engineer, one A. C. Kirkwood, likewise from Colorado Springs. Having cordially disliked each other for years, we both married for money, but, being mutually disappointed, settled for love.

A daughter, who died when she was five, and two engineering sons, who cleverly chose delightful wives, (see photo) are by far our greatest achievement, although being grandparents runs a close second. Since 1930, we've lived in Kansas City, Missouri, and may, in time, get used to the climate.



THE ENGINEER . . .
Homefront Specialist

BY MRS. FRANCES T. KIRKWOOD

IT'S really his own fault, as any wife will gladly explain, when an engineer has occupational difficulty on the domestic front. Other professional men, she will point out, are, in general, content to specialize in one field, divorcing home from business as much as possible and letting dear Ermintrude manage the former without interference. But an engineer is the original Fix-it Man, born with an unquenchable eagerness to attack problems, and broadly educated to solve them. Home, for him, is therefore merely an extension of his office, and he likes nothing better than to double as a plumber, electrician, carpenter, bricklayer, or what have you. All of which would be just dandy, except that he is likewise, by both inclination and training, a perfectionist. There, my friends, is the rub!

The apartment is small, for instance, and the furniture has been fitted in with a shoehorn. But one morning, for no special reason, Ermintrude finds the arrangement intolerable. All day she broods. During dinner, if not before, she announces she has a wonderful idea and now is the time. Having measured the space in the first place, he knows her plan can't possibly work. Still, to humor her, he once more gets out his tape. "See?" he says pleasantly. "You can't move the desk and chair over here, because there's no other spot for the davenport."

She refuses, however, to believe him or her own eyes. "There must be some way," she insists, glaring at the davenport as if looks could shrink it to a loveseat. "If we put the table in that corner, and the bookcase between the window and the . . . " She abandons that line as impracticable and begins another.

After a while, still pleasantly, he says, "Look. I'll demonstrate. While you've been talking, I've sketched the room to scale. These pieces of paper represent the furniture. They're also to scale." He moves the papers into position. "This is the way we have it. I'll bet you a soda it can't be done otherwise."

In time, it will be one of the stories she likes to recount, and will be greeted by appreciative laughter. "Paper dolls at my age!" she'll say. "Wasn't that just like him? I should have known better than to argue with a slide-rule genius." She'll tell about how stubbornly she tried and how furious she became, and all for nothing. Then she'll add plaintively, "Aren't engineers *ever* wrong?"

IT is this accuracy which Ermintrude often finds so appalling, even though she knows that, without it, he might be a salesman or a merchant or a cab driver, but never an engineer. He has trained his mind to exactness in every detail, knowing there can be no shoddy stop-gaps, no second guessing, in the building of a bridge, a power plant, a dam, a super-highway. Day after day, he checks and double-checks specifications, blueprints, materials, workmanship, until anything less than perfection becomes actu-

ally abhorent to him, and time, though important, becomes secondary. He then applies this same technique at home, forgetting that Ermintrude is fundamentally an opportunist, preferring today's reality to tomorrow's dream and possessed by a terrible impatience to get things done *now*.

Take the redecorating of the bedroom. In a doctor's household, or a lawyer's, this would be a simple matter of the wife calling in a painter and telling him what she wants. But Ermintrude tried that once, and sadly remembers his hurt feelings over not being consulted, his dissatisfaction with the results, and his atomic reaction to what he considered unnecessary expense. So she mentions it, and he vaguely agrees it should be done. She mentions it again, but he's going out of town. By the fifth time, restive over her so-called nagging, he says, "All right, all right! I said I'd do it, didn't I? But when have I had time? Tell me that!"

LATER on he, too, will have a story to tell. "Know what my clever gal *did?*" he'll say. "Let me think she'd given up the idea, and then, when I was on a five-day trip, papered and painted the whole darn room herself." Being a nice guy, and secretly pleased that the affair is finally settled, he won't add that some of the painting made him shudder or that papering is definitely not her forte. But he will always wonder why she was in such a hurry and why she was quite so careless.

Nor, since an engineer is the world's best hoarder, will he ever understand her periodic yen to get rid of what he considers treasure and she calls junk. To his mind, no vagrant screw is too small, no half-used can of paint too old, no piece of pipe too short or bent to be saved. When the piano wheezes its last, he takes it apart with loving care, and gloats over each strand of wire. If an appliance is replaced, the old one is cherished for its spare parts. He is sure that sometime, somewhere, in his odd-jobbing, he will have sudden use for just such salvage, and it's a matter of pride to be prepared for any emergency.

And he is so often justified, as he happily builds a barbecue oven with bricks from the remodeled porch, or chops some old crates into sturdy tomato stakes, or repairs the attic fan with the motor from the long-gone washing machine.

YET, despite many such incontestable demonstrations, there inevitably comes a Sunday when he wakens to the sound of strange voices in the house, and discovers, to his horror, that a couple of cars and a light truck or two are parked at the curb.

"But, honey," Ermintrude protests, when he confronts her, "I told you earlier in the week I was going to put an ad in the paper." She laughs gaily. "People started phoning at six, and I've been busy as a bird dog. Remember the old ice cream freezer? I sold it for . . . "

"Sold it!" he yelps. "We'll be sued! Why, the wooden bucket was falling apart, and the crank was rusted tight."

"No, they weren't," she says smoothly, "because yesterday I twisted two pieces of your heavy copper wire around the bucket, and poured salad oil into the crank. I explained, but the woman said . . . "

Grim and helpless, he watches the merry looting. Salad oil and hard-to-get copper wire. The disgrace of it! Junior's old bicycle, a broken radio, and a roll of perfectly good fencing. Has the woman no sense at all? The toaster he'd promised to fix, and the battered lamp whose cord he'd planned to use. His life's blood, that's what it is, and all in the name of efficiency. Efficiency indeed! How can a man police the homefront without the proper tools? Never again can he trust her!

Eventually, however, this likewise becomes merely another story, because he has meanwhile had other troubles with Ermintrude. He is accustomed to dealing with people who speak the same language, who understand the terms he uses and something of the project at hand. But Ermintrude doesn't know a split rivet from a T-square, or electric conduit from corrugated transite, let alone how to go about mixing concrete or repairing a furnace. Add to this her tremendous bump of curiosity and her agile tongue, and she is obviously not the ideal helper. Yet some chores require a second pair of hands, and she is both so available and so eager that he puts her to work. He should know better.

HE has decided to add more insulation in the attic, which is merely a narrow space under the roof and completely dark. Having hauled the bulky material through the trap door, he has stationed Ermintrude at the top of the ladder with a flashlight, and has gingerly crawled to the far corner to begin his work. He is making good progress when, suddenly, the light disappears. Afraid to move, and angrier by the second, he holds his cramped position. "Sorry," she says, eons later. "The Smith's baby is due, you know, so when I thought I heard someone calling . . . But it wasn't anything, after all."

Or they're putting in a new front walk, and she has been a well trained robot for more than an hour. But it's turning out to be a bigger task than he anticipated. Completely forgetting her existence, he is wildly figuring whether he has enough concrete or should order more immediately, when she says, right at his elbow, "Are you giving it a rough or smooth finish?" Instantly, his mental arithmetic is gone—swoosh—and the slate is blank.

MAYBE the plumbing goes haywire, and she brings him a pair of pliers when he asks for a pipe wrench. Perhaps he has the garden beautifully planned, and she, thinking to be helpful, puts in several wavering rows of beans to spoil its symmetry. Or, crowning blow of all, maybe she elects to straighten up his work bench.

Whatever it is, and the list is endless, Ermintrude will go on giving him trouble for all their years, meanwhile wondering why this otherwise attractive man should be so hard to please. And he, the perfectionist, the homefront specialist, will ask himself why other professional men have such easy lives.—***End.***

About the Author . . .

Mrs. Kirkwood, right above, who has done some writing off and on for many years, is the wife of Engineer A. C. Kirkwood, prominent member of the Missouri SPE and NSPE. She has this to say about herself:

Born and reared in Colorado Springs, I graduated from Colorado College and, because Father grew volcanic over my yen for the stage, was sent to Radcliffe to get a Master's degree or else. While there, I snared (his version) or was snared by (my ditto) a smart young Stanford-M.I.T. engineer, one A. C. Kirkwood, likewise from Colorado Springs. Having cordially disliked each other for years, we both married for money, but, being mutually disappointed, settled for love.

A daughter, who died when she was five, and two engineering sons, who cleverly chose delightful wives, (see photo) are by far our greatest achievement, although being grandparents runs a close second. Since 1930, we've lived in Kansas City, Missouri, and may, in time, get used to the climate.

The Soviets Are Doing It. We Should, Too, Says William L. Batt

ARMS STANDARDIZATION NEED RE-EMPHASIZED

STANDARDIZATION of armaments among the Western Democracies, which has been strongly advocated in the pages of AMERICAN ENGINEER by Senator Ralph E. Flanders (November 1952), received another boost recently from William L. Batt, the retiring U. S. minister for economic affairs to the United Kingdom. Speaking at the Annual Meeting Award Luncheon of the American Standards Association at the Waldorf Astoria in New York, Mr. Batt, who is an engineer himself, declared that chaotic practices existing in the drawing rooms of Great Britain, Canada, and the United States, as well as in other friendly nations, are dangerously impeding the rearmament effort of the NATO powers.

"Standardization, in the broadest sense of the term," Mr. Batt said, "seems to me to be the common denominator in working out a solution to many of the economic and military problems that face the nations of the North Atlantic Treaty Organization.

"Certainly," he continued, "it is the common denominator to the solution of military problems, both in the field and in the factory. Standards are a key to the efficient and effective operation of any modern military force. They are infinitely more important where there is an attempt at a common defense among the armies of different nations in alliance. Beyond that, they are essential if the countries involved are to obtain the greatest possible economy in the use of combined industrial resources and effort."

The lack of basic, common standards for language, weapons, equipment, training, and procedures has been one of the most critical handicaps affecting the armies of the Atlantic Defense Community, the speaker pointed out, citing as one example the failure, in 1951, of an operation, in which a French infantry unit was maneuvering with American artillery support, simply because the American pieces were calibrated in mils and yards and were laying on targets on French maps which were marked in degrees and kilometers.

The Soviets, meanwhile, are rapidly eliminating such problems, pushing all seven European satellites to standardize their weapons and industrial production with the Russian norms. As an example, Mr. Batt told of recently seeing some new engineering standards from Czechoslovakia—each carrying the same number as the Russian standard on the same subject, each bearing a title in both Czech and Russian, and each having specific notations on where it differed from the Russian counterpart.

A certain amount of progress in standardization has, of course, been achieved in the democratic world, Mr. Batt explained, briefly reviewing the successes to date. Perhaps the greatest advances have been made in the design of electronic and radio equipment for military use, he said. A program has just been initiated for standardizing medical equipment, training, and techniques, which will mean eventually that a British stretcher will fit the trolleys of an American ambulance or a Turkish needle will fit a French syringe. Also, small arms and ammunition have been fairly thoroughly standardized, in spite of the U.S.-British differences on the calibre and design of a new shoulder rifle; and Britain, Canada, and the United States have agreed on about 400 items as common standard equipment.

Nevertheless, Mr. Batt emphasized, no matter how gratifying such successes may be, true standardization must go far beyond such superficial unification. "It must be based," he said, "on fundamental engineering practices. It must include components common to more than one type of equipment. Only when you have that, can you expect full interchangeability and maintenance of equipment by different nations in the field. It will enable one country to use drawings made in another country with the assurance the item produced will be identical in dimension and in function."

Bringing this about is not a job for government, he stated, but for individual enterprises acting in cooperation with the governments of the countries concerned. The primary responsibility," he declared, "rests with top management men in all three countries (United States, Britain, and Canada), for the simple reason that standardization is a top management responsibility. On the technical level it can be carried out by technical men; but only management can give these technical men support, basic initiative, and the command decision." Trade associations and technical societies can also play a major role in standardization progress, he averred.

From the strictly economic view, Mr. Batt explained, the improved productivity resulting from standardization practices will also be definitely beneficial to the various national economies. Likewise, he said, standardization can be a vital factor in creating a more effective international trade.

If America is to carry out successfully the responsibilities of leadership, he concluded, "we must help Europe discover, as we have discovered, that competition and cooperation are not mutually exclusive; that wasteful diversification is not necessarily the same thing as competition; and most significantly, that competition is the answer to better living, not its destruction. To this end, standardization is an indispensable tool."

In addition to having served as U.S. minister of economic affairs in England for the past two years, Mr. Batt headed the ECA mission and served as the United States member on NATO's Defense Production Board. He was vice chairman of the War Production Board during World War II and, before entering Government service, was president of S. K. F. Industries for 27 years.

Secretary of the Interior Oscar L. Chapman Presents Citation to James F. Fairman, DEPA Administrator, and Ex. V. Pres., NSPE

James F. Fairman, Administrator of the Defense Electric Power Administration, and an ex-Vice President of the NSPE, has been presented with a citation by Oscar L. Chapman, Secretary of the Interior, on the eve of Mr. Fairman's retirement as head of DEPA. The citation is for "distinguished service in recognition of outstanding leadership and exemplary service in the furtherance of the national security and defense," the text of which reads as follows:

"After serving as Deputy Administrator, Mr. Fairman succeeded to the position of Administrator of the Defense Electric Power Administration at the time when the vital need to expand the Nation's electric power generating capacity for the defense and protection of our economy was not generally recognized. While skillfully distributing the insufficient allotments of available materials and equipment to power projects to the best advantage of the expansion program, he developed and carried on an effective educational campaign to bring about full realization of the need to enlarge the country's power potentials to keep pace with industry expansion. With his aid there was a complete reversal from the opinion that the expansion program established by the power industry was exorbitant. By a realistic approach to gain recognition of the expansion program, power was placed among the industries basically essential to our defense and protection. As a result, he relieved to an appreciable extent the withholding of scarce materials and equipment needed by power projects to reach their goals. In an industry fraught with a divergence of opinion on the matter of ownership of power supply facilities, Mr. Fairman, through his inspiring leadership and fairness, obtained unparalleled unity of effort and purpose. For his excellent leadership, vigorous patriotism, and outstanding service to the Nation, the highest tribute of the Department of the Interior, its Distinguished Service Award, is granted to Mr. Fairman."

The presentation was made by the Secretary of the Interior at a testimonial luncheon for Mr. Fairman held recently at the Statler Hotel, Washington, D. C., and attended by 75 friends and associates of the retiring DEPA executive.

Mr. Fairman, a Vice President of Consolidated Edison Electric Company, of New York, was appointed Deputy Administrator of DEPA by Secretary Chapman on April 2, 1951, and on July 1, 1951, was named by the Secretary to succeed Clifford B. McManus of Atlanta, Georgia, as Administrator.

His resignation became effective November 30, 1952, when he returned to his duties as Vice President of Consolidated Edison. He will be succeeded by James F. Davenport, Vice President of Southern California Edison Company of Los Angeles, California, who has been serving as Deputy Administrator since his appointment to that office by Secretary Chapman on October 1, 1952.

In his letter accepting Mr. Fairman's resignation, Secretary Chapman expressed his appreciation of his services in the following terms:

"My dear Mr. Fairman:

"It is with much regret that I find myself obliged to accept your resignation, effective November 30, 1952, as Defense Electric Power Administrator, contained in your letter to me of October 27.

"During my many years in the Federal Government I have encountered a multitude of businessmen who have come to the assistance of their Government in times of emergency. My experience with these men has been uniformly good. I must tell you in all candor, that your performance has been outstanding. Your energy, your vision, your forthrightness have been exceeded only by your desire to seek answers to vexing problems based solely on the consideration of the public interest. Your performance in a most critical area of the defense program has been characterized by fairmindedness which has won the respect of all of your associates.

"I believe that your greatest contribution has been the feeling you leave among your colleagues that the Federal Government, and the people, have gained greatly from your tour of duty.

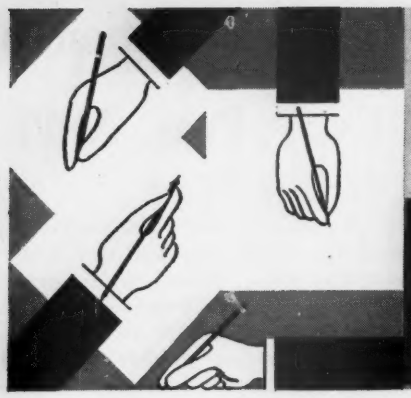
Sincerely yours,

(Sgd.) Oscar L. Chapman
Secretary of the Interior"

In a letter to H. R. Searing, President of Consolidated Edison, thanking him for the loan of Mr. Fairman's services, Secretary Chapman refers to Mr. Fairman's contribution to industry-government relations as follows:

"By his demonstration of fairmindedness and objectivity, he has encouraged confidence that no problem is too difficult to solve if approached with a deep-rooted desire to secure a solution on the basis of mutual interest. I congratulate Consolidated Edison Company for having as one of its key officials a man of the stature of Mr. Fairman. I should like to express through you to your company the appreciation of all of us for having made Mr. Fairman available in the service of the country."

Below: Mr. Fairman



Professional POSTSCRIPTS

A Happy New Year! Another year passes and our engineering profession becomes older and, we think, wiser. Wiser to its obligations to the nation and the world. May 1953 be a great year for our technological leaders.

In 1953 we will continue to have professional problems and one of the most important will remain the question of remuneration. Because it is a major problem, the AMERICAN ENGINEER believes it should receive all publicity possible. Therefore, we reprint below an editorial from the **British Columbia Engineers Magazine.** It's well done and contains many fresh ideas.

—PP—

Whenever junior engineers gather together to talk over mutual problems, nine times out of ten the conversation will sooner or later turn to remuneration, or what we have chosen to call "The Big 'R'." It is a well-known fact not only to the junior engineer, but also to the senior man, that the financial return to an engineering graduate for the years spent and money laid out, in obtaining an engineering education is fantastically low.

Despite the figures produced by the Dominion Government last spring which showed engineers to have the highest average incomes of all groups in Canada, it is a well-known fact that employee engineers, who make up the largest proportion of the members of the profession, are among the lowest paid of the professional groups. Fortunately, such future pronouncements from Ottawa will, as a result of representations made to them since the publication of their report last spring, be more careful in defining the group to which they refer.

It is time, however, that we ask ourselves why it is that engineers' salaries are not, generally, what they should be.

Obviously, the average employer does not realize the value of the engineer to him. It is our contention that a good engineer, properly employed, should save the employer many times his salary in the course of a year. By this we do not mean to suggest that a young graduate should be able to produce spectacular results in his first two months, nor even in his first year, of employment with a firm. But we do feel that if the man is given a reasonable time to get into the business, he should produce results. We have yet to see the employer who will not spend a dollar when he knows that the spending of that dollar will either save him two dollars or produce two extra dollars for him. He must, therefore, be convinced that the engineer will do this also.

It is up to the engineers themselves through their organizations to convince the employers that they are of such value to the employer that their salaries should be considerably higher than they are at present. This is not something that can be done in a day or even a year. It is going to take much longer. Some sort of a programme must be set up to do this, call it a public relations programme if you wish. It should not be aimed at salaries specifically, because the most difficult place to hit anyone is in his pocketbook — no, the programme should be aimed at informing management of what an engineer, properly employed, can do for him.

Those words "properly employed," however, possess to a large extent the key to the whole situation. We hear much said these days of the shortage of engineers, but we do not feel that sufficient emphasis is placed on the proper use of the engineers we have available. Many of our graduates are working as salesmen, where their engineering background is certainly of use to them. In fact, we must agree that without this engineering background, most of these men could not perform satisfactorily in selling their respective products. Nevertheless, we never hear of a graduate in medicine selling patent medicines because of his medical background, do we? This may be a poor analogy, but nevertheless the analogy is there. At any rate, the "sales engineer" is probably among the group in the profession which is receiving above-average salaries, that is, above-average for engineers.

Many of our graduates are working, however, as draughtsmen, and are not using their education in the way that they should. Perhaps a better way of putting this would be that their employers are not using these graduates in the proper way. Again we agree that it is quite often necessary to put a young graduate on a draughting board for a while after he has just begun his first job, but we feel that this should not extend over a long period.

The young graduate should be learning something all the time, so that he can eventually assume responsibility for projects. He should know enough about draughting so that he himself can direct draughtsmen. If he himself is going to be a draughtsman, he probably would have been better off if he had just completed high school, taken a draughting course, and then spent the other four years he spent in university in a draughting office. Not only would he have made a better draughtsman, but he would have saved himself the price, in time and money, of education, which he is not using.

Finally, we suggest that we engineers should all work primarily towards establishing ourselves as a profession, by ensuring that our ethics are beyond reproach, and by instilling in our members a professional consciousness. If we succeed in this, our prestige before the public will increase, and as this occurs, remuneration of engineers in general will rise.

—PP—

One word before we close this page for this month: February 22-28, 1953, is National Engineers' Week. Engineer W. E. Perry, Chairman of the National Engineers' Week committee, in his memo printed on page 18; asks all local officials to join in this major public relations program. We would like to add to this. We think *every* member, whether he is actually on a committee or not, should feel that he is a "*committee of one*" to further the interests of the profession and the Society during the Week. Everyone should go to work —all 28,000 of us! *How about you?*

NEXT MONTH

The February Issue of the *American Engineer* will contain more pages, more reading, for Professional Engineers

A Great Professional Leader . . .

A Tribute to Arthur V. Sheridan, Past Pres., NSPE

By DR. D. B. STEINMAN,
First President, NSPE

The recent tragic death of Arthur V. Sheridan is a real loss to the Engineering Profession. By his rare personal qualities and his professional dedication, he had won the highest place in the affection and esteem of all who had the privilege of knowing him. He was a pioneer and a leader in the Professional Engineer movement. He was the founder of the New York State Society of Professional Engineers in 1926, and one of the founders of the National Society of Professional Engineers in 1934. He served as President of the New York State Society, and subsequently as President of the National Society. In addition he served as the unpaid volunteer editor of the AMERICAN ENGINEER, from 1931 when the publication was inaugurated by the New York State Society, and for a number of years after 1935 when the publication was taken over by the National Society.

Arthur Sheridan was a naturally gifted speaker, with rare charm, wit and eloquence in his writings and in his public addresses. He was intellectually brilliant, while at the same time enthusiastic in his vision and deeply warm and human in his sympathy and understanding. At the time of his tragic accident, he had just announced his retirement from public office after a lifetime of distinguished public service and professional contributions. Many honors and tributes were being planned for him by his friends, colleagues, and professional organizations, when his untimely passing interrupted those plans and prevented us from paying these tributes while he was still alive to receive them. The occurrence brings home poignantly the too-often forgotten admonition to "give flowers to the living"—while they are still with us.

Recently I came across some appropriately expressive lines written by no less a poet than Byron and, by a strange coincidence, the poem bears the caption "On the Death of Sheridan." Byron's tribute referred to another Sheridan—the brilliant Irish dramatist and orator, Richard Brinsley Sheridan, who died in 1816—but, by remarkable parallelism of rich gifts and personal qualities, the lines read as though the poet Byron had our own Arthur Sheridan and his noble qualities in mind. The following excerpted passages are particularly striking in their poignant aptness to the friend and fellow-worker we have known and lost.

"Even as the tenderness that hour instils
When Summer's day declines along the hills,
So feels the fulness of our heart and eyes
When all of Genius which can perish dies.
A mighty Spirit is eclipsed—A Power
Hath pass'd from day to darkness—to whose hour
Of light no likeness is bequeath'd—no name
Focus at once of all the rays of Fame!
The flash of Wit, the bright Intelligence,
The beam of Song, the blaze of Eloquence,
Set with their Sun, but still have left behind
The enduring produce of immortal Mind;
Fruits of a genial morn, and glorious noon,
A deathless part of him who died too soon.
But small that portion of the wondrous whole,
These sparkling segments of that circling soul,
Which all embraced—and lighten'd over all,
To cheer—to pierce—to please—or to enthral.
"From the charm'd council to the festive board,
Of human feelings the unbounded lord.

. . . . . .

He was your brother—bear his ashes hence!
While Powers of mind almost of boundless range,
Complete in kind—as various in their change,
While Eloquence—Wit—Poesy—and Mirth,
That humbler Harmonist of care on Earth,
Survive within our souls—while lives our sense
Of pride in Merit's proud preeminence,
Long shall we seek his likeness—long in vain,
And turn to all of him which may remain,
Sighing that Nature form'd but one such man
And broke the die—in moulding Sheridan."

A group picture of the newly organized National Society of Professional Engineers taken at the first Annual Meeting in October, 1935, at Columbus, Ohio. Circled at left, above, is Arthur V. Sheridan, and circled at right is D. B. Steinman.

With Our Members . . .

Active Hoosiers

Calumet P.E.'s Sponsor Legislation, Play Host To Indiana Convention

The Calumet Chapter of the Indiana SPE will sponsor a Lake County Port Authority Law to be introduced in the 1953 session of the state legislature, according to the latest word from Robert E. Hutton of Hammond, the chapter's president.

A five-man committee has been appointed to review an already-written Port Authority Bill and revise it according to the best interests of the entire area. The committee will consult with chambers of commerce, labor unions, industrial groups, political authorities, and other interested parties in studying the proposed legislation which is to be aimed chiefly at the solution of area-wide transportation-communication problems through coordinating the action of the various Lake County governmental units.

Members of the committee include Henry P. Kuehl of Hammond, chairman; Joseph F. Wysong, Hammond; Alfred L. Thompson, Munster; William H. Reynolds, Gary; and Joseph F. Kaminski, Calumet City.

The proposed Port Authority, if approved by the Lake County voters after the preliminary steps of passage of the bill by the legislative assembly and appropriate petitioning for its creation by at least fifty Lake County taxpayers, would be administered under four commissioners, two from each major political authority, appointed by the governor. The commission would appoint a chief engineer who would, in turn, select other engineering personnel and employees as necessary. The first job of such an Authority would then be to survey local needs and draw up plans for definite action; it would be authorized to issue bonds to cover highway construction and other costs.

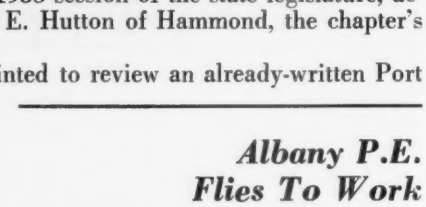
In addition to laying the groundwork for the proposed legislation, members of the Calumet Chapter have also been busy as hosts to the Annual Convention of the Indiana SPE, which was held in Gary in December. Chester L. Stemp of Chesterton was chairman in charge of arrangements for the convention.

Monmouth Social Event

The members of the Monmouth-Ocean engineers' group in New Jersey recently hosted a Ladies' Night which featured a buffet supper as well as music, dancing, and games.

Albany P.E. Flies To Work

Consulting Engineer Joseph L. Ottenheimer of Albany, N. Y., has solved his inter-city commuting problems by use of the silver and red high wing monoplane pictured here. Mr. Ottenheimer took up flying as a hobby



more than four years ago, but has also found since then that his Cessna 170B four-seater comes in very handy for business trips to such varied points as Plattsburg, N. Y., Burlington, Vermont, and even as far as Denver, Colorado.

Smoke Abatement Is Detroit Meeting Topic

The City of Detroit's Smoke Abatement Program was the subject of a talk given at the Detroit Chapter, Michigan SPE, meeting on December 10 at the Rackham Memorial Building. The speaker was Benjamin Linsky, chief smoke inspector of the Bureau of Smoke Inspection and Abatement, Detroit Department of Buildings and Safety Engineering. His talk covered the past accomplishments, present activities, and current problems of Detroit's smoke abatement campaign, and a movie illustrative of the city's air pollution control activities was also shown.

Philadelphia Dinner Features Presentation Of Certificates

In accordance with its now-established annual custom, the Philadelphia Chapter, PSPE, was host recently at a dinner and meeting during which newly-registered professional engineers were presented with their official registration certificates. The presentation ceremony was a most impressive one with Francis S. Friel, a member of the Pennsylvania Registration Board, personally distributing the certificates, assisted by Miss Rebecca J. Nickles, secretary of the Board. Mr. Friel, who is president of Albright & Friel, Inc., and also at present a national director of the American Society of Civil Engineers, addressed the registrants briefly on their responsibilities in the future.

The dinner that honored the new P.E.'s was attended by 193 persons, and the attendance figure rose to 235 for the meeting and presentation ceremony. Among the guests present were the chairmen of sixteen affiliated Philadelphia engineering societies.

Following the presentation ceremony and the address by Mr. Friel, William C. Hinze of the Federal Bureau of Investigation gave a lecture on the work of that agency.

Labor Relations Discussed At Albany

Members of the Albany County Chapter of the New York State SPE recently heard Mr. A. C. Stevens, assistant to the Works Manager of the General Electric Company in Schenectady, speak on the subject of *Labor Relations*, with emphasis on how the problem affects operations at the Schenectady Works.

Arkansas Society Acts On Highway Problems

The Arkansas Society of Professional Engineers has been taking an active part in furthering the revision of the present State Highway Department organization and practices by offering free engineering services to the Citizens Highway Committee. Harold J. Engstrom of Little Rock is the ASPE representative on the Committee, which was formed to draw up plans for submission to the State legislature aimed at increasing the efficiency of the Highway Department and the betterment of the State highway system.

President Coleman Visits Ohio University

NSPE President John D. Coleman was guest speaker recently at a convocation sponsored by the Ohio University Student Chapter of OSPE. The title of his address was *The Golden Age of Engineering*. In it he traced the growth of the engineering profession and the progress made by the various technical societies, as well as discussing the need for and the work being done to bring about professional unity.

Following the convocation, a banquet was given in honor of Mr. Coleman. Members of the Hocking Valley Chapter, faculty members of Ohio University, and officers of the Ohio University Student Chapter attended. President Coleman also spoke briefly during the banquet, and later he addressed an informal student gathering.

He had previously appeared as a speaker at the University in 1948 when he presented the charter to the engineering students, thus founding the first student chapter of OSPE.

Charter Ceremony At Ohio Northern U.

A ceremony held recently at Ohio Northern University marked the chartering of the eighth student chapter of the Ohio SPE. Principal speaker at the event was OSPE President Raymond A. Freese who presented a brief history of the society and explained the objectives and functions of the national and state organizations.

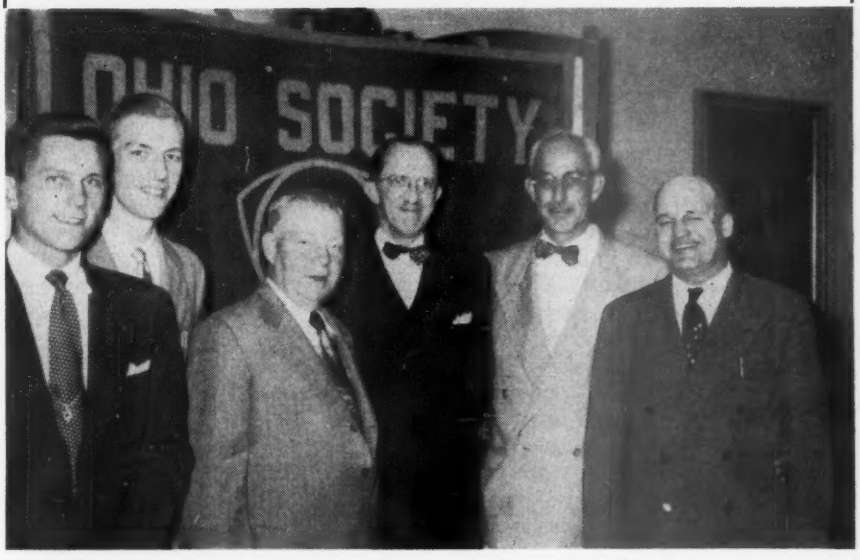
Other talks at the dinner-meeting were given by Lloyd A. Chacey, OSPE executive secretary; Dr. F. B. McIntosh, president of Ohio Northern University; Carl Lohrey, advisor for the OSPE student chapters; and Ray B. Fogg, president of the Ohio Society Student Council, who welcomed the new members.

G. C. Souders, the new student chapter president, accepted the Ohio Northern chapter from President Freese.

Bearing Design Lecture For Lorain County

John P. Critchlow, chief fuels and lubricants engineer with the Gulf Oil Company in Pittsburgh, addressed the members of Ohio's Lorain County Chapter at their December meeting at Hotel Antlers in Lorain. The subject of his talk was *Bearing Design and Lubrication.*

At Ohio Student Assemblies



Pictured, left to right above, at a recent convocation at Ohio University are: Ray B. Fogg, President of the State Student Council of the Ohio SPE; Robert Kail, President of the Ohio University Student Chapter; A. W. Seabright, President of the Hocking Valley Chapter; John D. Coleman, President of NSPE, the featured speaker and honor guest; George W. Clark, past President of the Ohio Society; and R. Gordon, OSPE Vice-President.

Below, OSPE President Raymond A. Freese is shown addressing members of the new Ohio Northern University Student Chapter. Others in the picture, seated left to right, are: Burt F. Wyandt, OSPE Treasurer; Lloyd A. Chacey, OSPE Executive Secretary; and G. C. Souders, the President of the new student chapter.

Clothing Drive Succeeds

The clothing drive for Korea sponsored by the Reading Chapter of the Pennsylvania SPE at the suggestion of Lt. Col. George Bachman, a member currently serving in that theater, has been a huge success according to a recent chapter announcement. More than 145 lbs. of clothing have already been packed and shipped to the colonel for distribution to Korean needy.

Gas Turbine Lecture In San Jose

J. M. Dodd of General Electric in San Francisco is the speaker scheduled for the January meeting of the San Jose Chapter of the California SPE. Mr. Dodd will talk on gas turbines and jet propulsion.

The chapter's December meeting featured a lecture by Leslie M. Hansen on *Patent Advice for Engineers.*

NSPE Members Kavanagh And Coff Win Lincoln Arc Welding Foundation Award

Dr. Thomas Kavanagh, head of the Department of Civil Engineering of New York University's College of Engineering, and Leo Coff, a New York Consulting Engineer, recently shared one of three top cash awards in the James F. Lincoln Arc Welding Foundation national competition for a bridge design that would conserve steel.

The 990-foot three-span girder bridge was designed by the two engineers for the use of either riveting or welding. The welded design, which took third place in the competition, showed a saving of 21 per cent in the use of steel. It featured the possibility of subdividing any span by subtended cables anchored into the concrete roadway of the bridge, thus supporting the bridge beams by cable offsets rather than by piers.

Dr. Kavanagh has also received first and third awards in two previous Lincoln Foundation bridge design competitions. One of his designs has been used in the construction of a bridge over the Rio Blanco in Mexico. Mr. Coff is a specialist in prestressed concrete and was at one time connected with the John A. Roebling's Sons Company. He is a member of the Pennsylvania SPE, while Dr. Kavanagh belongs to the New York State group.

Prize Winners

Mr. Coff — Dr. Kavanagh

City Planning Lecture In Austin

City Planning and the Engineer was the title of the featured lecture at a recent meeting of the Travis Chapter of Texas Society of Professional Engineers, held at El Matamoros Cafe in Austin. The speaker was P. E. Julian Montgomery, a member of the Chapter.

Fairmont, W. Va., Group Hears Varied Talks

The changes that have occurred in the coal tar industry and the chief uses for its products were explained by Dr. Moatz of the Reilly Tar Products Company at a recent meeting of the Fairmont Chapter of the West Virginia SPE. The program was arranged by P. A. Neri.

Bureau of Mines expert William Eathorne spoke on methods of fire prevention at a second meeting, the program for which was scheduled by Edward Manigault.

Chester County Hears Railway Lecture

W. G. Salmonson, assistant chief engineer of signals of the Pennsylvania Railroad in Philadelphia recently addressed a meeting of the Chester County Chapter of the PSPE at the Coatesville Y.M.C.A. Mr. Salmonson's talk, illustrated with slides and pictures, dealt with high-speed trains, switching in classification yards, and many other phases of modern railroad transportation.

Student Counseling Value Stressed

At a recent meeting of the Western Chapter of the Wisconsin Society, held at the Stoddard Hotel in La Crosse, Pierce Ellis, Society vice-president and speaker of the evening, stressed the importance of counseling qualified high school students to encourage them to go into engineering.

Earl Goddard, a member of the recently-formed American Society of Tool Engineers, also gave a brief talk describing the activities of his organization.

Knoxville Chapter Hears Educator

Professor Paul C. Cromwell, head of the Department of Electrical Engineering at the University of Tennessee, spoke on *The Future of Engineering* before a recent meeting of the Knoxville Chapter of the Tennessee SPE. His address also covered a discussion of the University's program for graduate engineers. Hazen House of the Knoxville Chapter arranged the program.

Variety Of Activities In Franklin County

Members of the Franklin County Chapter of the Ohio SPE recently played hosts at a dinner meeting to the Central Ohio, Eastern Ohio; Hocking Valley, Marion, Muskingum Valley, Ohio Valley, Portsmouth, Southern Ohio, and Zanesville chapters. The main event of the evening was the presentation of certificates to new registrants of the area. Dr. Tennyson Guyer was the speaker at the meeting which was held in the Main Ballroom of the Chittenden Hotel in Columbus.

Another recent Chapter event that brought out a large attendance of members and their wives was a dinner, style show, and dance.

Annual Dinner In Galveston

The Galveston County Chapter of the Texas Society held its Annual Dinner at Elks Hall in Galveston on December 12. Dr. C. M. Pomerat was the guest speaker, choosing as his subject *The Dynamics of Human Cells.* Engineer E. M. Grimes is president of the Galveston Group.

Westchester County Honors C. A. Garfield

At a testimonial dinner attended by nearly five hundred persons, the Westchester County Chapter of the New York State SPE recently paid tribute to Chester A. Garfield, a past president of the Chapter and retiring chief engineer of the Westchester County Department of Public Works.

Citing Mr. Garfield's forty years of engineering in Westchester as a "lifetime of service" to the county, Richard M. McLaughlin, Chapter president and chief engineer of the County Department of Health, told how the honoree has supervised the building of the county parkway system. County Public Works Commissioner James C. Harding presented a television set to Mr. Garfield as a gift from the Society, praising him for his "loyalty and competence."

The dinner at which Mr. Garfield was honored also served as the Chapter's celebration of its Twenty-Fourth Anniversary. It was arranged under the general chairmanship of Chapter President Richard M. McLaughlin. Vincent G. Terenzio served as toastmaster and chairman of the Entertainment Committee, while Joseph A. Brady headed the Reception Committee. Max Vogel, Ebbert Pearson, and Norman Odell were respectively in charge of arrangements, finances, and publicity. The dinner was held in the Glen Island Casino, New Rochelle, New York.

Edward R. Dye Addresses Niagara County Chapter

Edward R. Dye, director of the Industrial Division of the Cornell Aeronautical Laboratory, was the featured speaker at a December dinner meeting of the Niagara County Chapter of the New York State Society. The subject of his talk, which was illustrated with slides, was *Crash Safety Research.* Mr. Dye, who has had a variety of experience in the teaching, industrial, and engineering fields, is a member of the Erie Chapter of the Society.

Coleman Attends Arizona Meeting

NSPE President John D. Coleman was the guest speaker at the Annual Engineers' Dinner during the recent Fourth Annual Joint Meeting of the Arizona Engineering Societies recently. The dinner was held in the Fiesta Room of the Hotel Westward Ho in Phoenix.

Pasadena Chapter Inaugurates Bulletin

The Pasadena Chapter of the California SPE has inaugurated the publication of a monthly bulletin, through which the editors hope eventually to reach all P.E.'s in Pasadena and the San Gabriel Valley.

At a recent meeting, members of the chapter heard R. W. Brown speak on the operation of the Pasadena fire alarm system which is typical of that used in most small and medium-sized cities in the United States.

Fort Wayne Meeting

Members of the Fort Wayne, Indiana, Chapter, joining in a dinner meeting recently with the Fort Wayne Engineers Club, heard two guest speakers—Mr. William Smith and Mr. Paul H. Robbins, the executive director of NSPE. The meeting was held at the Hotel Van Orman in Fort Wayne.

Engineer's Monument

Schenectady Chapter Sponsors Memorial

The memorial tablet shown above was recently unveiled in Schenectady as a tribute to W. L. R. Emmet, an outstanding American engineer. The memorial was sponsored by the Schenectady Professional Engineers Society, the local chapter of the New York State SPE.

Emmet, who died in 1941, is known as one of the pioneers in the development of turbines for generating electricity and also as the engineer who introduced the electric drive in the Navy's fighting ships. The plaque was unveiled by his namesake and great grand-nephew who is shown in the photograph. A similar plaque was also recently unveiled at Annapolis.

With the Ladies

By MRS. WILLIAM FELL
Chairman, NSPE Ladies' Auxiliary Committee

The Oklahoma City Chapter's Auxiliary recently celebrated its 15th Anniversary. The occasion was marked by a luncheon in the home of Mrs. Frank Meyer in Silver Lake. Mrs. Meyer was the hostess also at the first meeting of the Auxiliary in 1937.

Mrs. W. Boyd Stephenson was cohostess for the anniversary event; and Mrs. L. M. Limpus, Mrs. G. N. Douglass, Mrs. Harry F. Hulett, Jr., and Mrs. Joe Clark also assisted with the party.

Members of the auxiliary of the Franklin County Chapter of the Ohio SPE, a very active group, recently met to follow a movie "tour" of the new Ohio State Hospital and hear a talk by Dr. Robert Browning, director of the University Tuberculosis Hospital.

At an early December meeting, Mrs. John Heier conducted a workshop on the arrangement of Christmas greens, and Mrs. Clifford Irey gave the members a lesson in gift wrapping.

The ladies of the Galveston County, Texas, Auxiliary recently attended a tea at the home of Mrs. G. M. Dent in Galveston. Current plans also call for a luncheon meeting this month.

Rockford Members Hear Traffic Talk

Members of the Rockford Chapter of the Illinois Society heard William Day, city engineer and a member of the chapter, speak on the Lochner Traffic Control Plan for Rockford at a recent meeting. This plan proposes a 20-year program of street rearrangement to meet the city's increasing traffic problems. Following the lecture and a question-and-answer period, the chapter passed a motion of approval for the plan, which recommendation was forwarded to the city council.

Atomic Energy Lecture In Wooster

Dr. William F. Kieffer of the Department of Chemistry, College of Wooster, Ohio, was the guest lecturer at a recent meeting of the North Central Chapter of the OSPE. Dr. Kieffer, who was formerly a member of the technical staff at Oak Ridge, Tennessee, spoke on *The Development of Nuclear Reactors and Atomic Energy As It Is Today.*

Boston Engineers Push Education Program

The Educational Committee of the Metropolitan Chapter of Boston, Massachusetts SPE, has been carrying out a vigorous program to introduce and explain the engineering profession to interested groups in local high schools. During December the program reached its peak with seven chapter members giving lectures at various schools in the area on *What Engineers Do and Where They Work.* The lecturers included P.E.'s W. F. Allen, Jr., S. Lewiton, R. F. Birkenstock, J. F. Keating, M. J. Feldman, B. S. Seetoo, and S. Robinson. Roland R. Darling is the Educational Committee's chairman.

A recent meeting of the entire Metropolitan Chapter group also featured a talk on *The Science of Earthquakes and Its Applications in the Field of Engineering,* given by Rev. Daniel J. Linehan, S.J., a world-renowned seismologist and Director of Weston College Observatory.

New Officers In Western Mo. Chapter

Officers and directors for 1953 in the Western Chapter of the Missouri SPE have been named as follows: Arthur C. Kirkwood, Chairman; Arlow V. Ferry, Vice Chairman; Burl Y. Slates, Secretary-Treasurer; John C. Bibbs, State Director; and Robert L. Baldwin and M. Jay Horney, Chapter Directors.

Christmas Dance In Cleveland

A highlight of the holiday season in Cleveland was the annual Christmas dance and card party sponsored by the Cleveland Society of Professional Engineers early in December. Fred Gaub was in charge of arrangements for the dance which was held in the ball room of the Lake Shore Hotel. Music for the evening was supplied by Gene Beecher's Orchestra.

Tulsa Chapter Elects

The December meeting of the Tulsa Chapter of the Oklahoma Society featured the election of the following officers for 1953: W. F. Hildebrand, President; W. J. Fell, Executive Vice-President; A. Clyde Young, Membership Vice-President; L. T. Bossard, Programs and Meetings Vice-President; O. E. Pederson, Public Relations Vice-President; and C. O. Clark, Secretary-Treasurer.

Ohio Turnpike Discussed In Akron

Ellis P. Root, the engineer in charge of construction of the entire Ohio Turnpike, gave a talk on that subject at the December meeting of Ohio's Akron District Chapter. The lecture was followed by a question-and-answer period.

Midwestern Pa. Chapter Hears Technical Talk

Highlights and Sidelights of Engineering was the subject covered by Charles A. Scarlott in a recent address before a meeting of the Midwestern Chapter of the Pennsylvania Society. Mr. Scarlott is manager of Technical Information for the Westinghouse Electric Corporation and editor of the *Westinghouse Engineer.*

Delaware P.E.'s Meet, Hear Columnist

Members of the Delaware SPE met on December 4 at the Hob Tea Room in Wilmington for dinner and a lecture by William P. Frank. Mr. Frank writes a daily column — *Frankly Speaking*—for the *Wilmington Morning News;* he also acts as a news commentator on local station WILM. The subject of his address at the dinner meeting was *Early Engineers of Delaware.*

N.S.P.E. Officers

President, JOHN D. COLEMAN, P.E.
Supervisor, Material Utilization
Frigidaire Division—G M Corp.
2520 Elsmere Ave., Dayton, Ohio

Vice President, CLARENCE T. SHOCH, P.E.
Asst. to Vice President, Commercial
Pennsylvania Power & Light Company
901 Hamilton St., Allentown, Pa.

Vice President, DEAN N. W. DOUGHERTY, P.E.
University of Tennessee
Knoxville, Tenn.

Vice President, E. W. SEEGAR, P.E.
Vice President, Cutler-Hammer, Inc.
315 North 12th St., Milwaukee, Wisc.

Vice President, C. Y. THOMAS, P.E.
Vice President, Spencer Chemical Company
Kansas City, Mo.

Vice President, T. CARR FORREST, JR., P.E.
Forrest & Cotton, Consulting Engineers
Praetorian Building, Dallas, Tex.

Vice President, WILLIAM D. WILLIAMS, P.E.
Civil Engineer, Headman, Ferguson & Carollo
3308 North Third St., Phoenix, Ariz.

Treasurer, RUSSELL B. ALLEN, P.E.
Professor, Civil Engineering
University of Maryland
4610 Hartwick Road, College Park, Md.

Executives Offices
1121 Fifteenth Street, N.W.
Washington 5, D. C.

Executive Director, PAUL H. ROBBINS, P.E.

Alabama Elects 1953 Officers

A Birmingham, Alabama, engineer, H. K. Weaver, has been elected to serve as President of the Alabama Society of Professional Engineers for 1953. Mr. Weaver is associated with the Portland Cement Association in its Birmingham district office.

Others elected for the 1953 term by the Alabama group include: John C. Heslip of the Butler Manufacturing Company, Birmingham, First Vice-President; L. B. Freeland, Jr., General Manager of Leff Engineering Company, Mobile, Second Vice-President; Kenneth A. Thigpen, a structural engineer of Birmingham, Secretary; and Robert H. Wallace of Strickland and Associates, Birmingham, Treasurer.

The new officers are currently working on plans for the Annual Meeting of the Alabama Society which will be held in Birmingham during Engineers' Week on Saturday, February 28.

Dean Galbraith Talks At Monroe County Meeting

Engineering Education was the subject of the lecture delivered before a recent meeting of the Monroe County Chapter of the New York State SPE by Dean Ralph A. Galbraith of the Syracuse University College of Engineering. Prior to the lecture, Dean Galbraith was honored at a dinner. The event was held at the Hotel Rochester in Rochester.

Birmingham Chapter Votes, Hears Lecture

Members of the Birmingham, Alabama, Chapter elected the following officers for 1953 at a recent meeting: J. A. McLennan, President; Belton Y. Cooper, First Vice-President; S. E. Sullivan, Second Vice-President; Wm. H. Bottomley, Jr., Secretary; and Ernest D. Hunter, Treasurer.

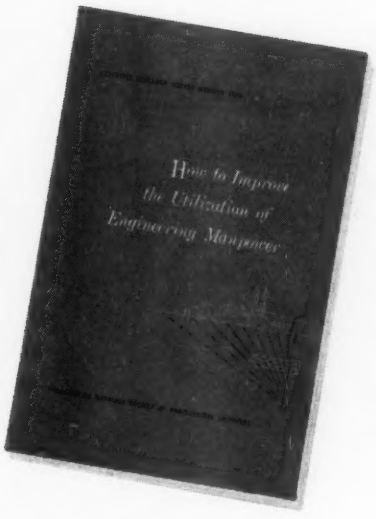
At the same meeting, O. W. Irwin, president of the Rail Steel Bar Association, was guest speaker.

Army Engineers Film Shown In Kansas City

A movie entitled *Engineers at Work,* featuring various activities of the Army Engineers throughout the world, was shown at a recent meeting of the Western Chapter of the Missouri Society at the Wishbone Restaurant in Kansas City.

If you work for someone and want to make yourself more valuable ... or if you are an employer who needs engineers

you'll want this book!



LOOK AT THESE CHAPTER TITLES:

CHAPTER I	Indoctrinating engineers—Suggestions for programs
CHAPTER II	Making the existing engineering staff more effective
CHAPTER III	The use of supporting personnel
CHAPTER IV	Are engineers' talents being wasted?
CHAPTER V	Auxiliary sources of engineering talent
CHAPTER VI	Engineering turnover—Causes and results
CHAPTER VII	Preparing the engineers of the future
CHAPTER VIII	How to improve the utilization of engineering manpower —Summary and recommendations
Suggested Readings on Utilization	

WOULD you like to know how 500 of America's leading industrial firms are solving their engineer shortage problems? Whether you are employer or employee, you can't fail to learn much from this NEW book about a problem that has concerned the Nation's leading industrial minds. *How to Improve the Utilization of Engineering Manpower* is a 56-page study of industrial firms and engineering organizations employing some 106,000 engineers and a total of 2,750,000 persons. It is the second in a series of Research Reports based on Executive Research Surveys conducted by the National Society of Professional Engineers, through its Professional Engineers Conference Board for Industry. The first report was entitled, *How to Improve Engineering-Management Communications.*

How to Improve the Utilization of Engineering Manpower is a guide book and manual for the executive in companies and organizations employing engineers and engineering services. For the engineer ... the student engineer ... the engineering educator, it is an appraisal and textbook of the values of better utilization.

In these times when management and engineers alike are striving to bring the vital contributions of engineering to maximum effectiveness in industry, research, government and national defense, this report on *How to Improve the Utilization of Engineering Manpower* is one of the most important contributions yet made to management's *working* bookshelf.

WHAT OTHERS SAY ...

"... an excellent job has been done in compiling the data and in the writing of this book."
C. Davis Blackwelder,
Vice President, Reynolds Metals Company

"... the report is very well done."
John Forslew,
Chief Engineer, The Carnation Company

"In reading this report I see ideas which we can employ to advantage in our company."
A. C. Neff, Vice President,
Armco Drainage & Metal Products, Inc.

"The report is an important step in improving the relationships between management and engineers..."
Charles E. Lawall,
Ass't. Vice President, C&O Railway Co.

Order Your Copies Today

PRICES:

- For NSPE members—$1 per copy, up to 25 copies
- For non-members—$2 per copy, up to 25 copies

Prices for quantities over 25 copies will be quoted on request.

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
1121 Fifteenth Street, N.W., Washington 5, D. C.

Please send me ..... copies of HOW TO IMPROVE THE UTILIZATION OF ENGINEERING MANPOWER at $..... per copy.

Please send me ..... copies of the first NSPE report, HOW TO IMPROVE ENGINEERING-MANAGEMENT COMMUNICATIONS, at $..... per copy.

I enclose (....money order) (...check) in the amount of $.....

NAME .....

STREET .....

CITY .....STATE .....

Professional Directory

COLORADO

C. M. HATHAWAY
Consulting Engineer

Electrical—Mechanical—Electronic
Product Development—Project Engineering
Production Designs—Planning
Research—Model Work and Pilot Manufacturing

1315 S. Clarkson St. **Denver 10, Colo.**

FLORIDA

SOUTH FLORIDA TEST SERVICE
Testing—Inspection—Research—Engineers

Consultants and specialists in corrosion, weathering and sunlight testing.

4201 N.W. 7th Street **Miami 34, Florida**

GEORGIA

ROBERT AND COMPANY ASSOCIATES
Consulting and Designing Engineers

Industrial Plants—Municipal, Highway and Airport Improvements — Power Plants — Water Supply — Sewage and Industrial Waste Disposal — Appraisals — Reports.

Atlanta **Georgia**

ILLINOIS

CRESCENT ENGINEERING COMPANY, INC.
Contracting & Consulting Electrical Engineers

Design, Supervision and Construction
Process Power and Lighting for Industrial Plants

6455 S. Central Avenue, Chicago 38, Illinois

DeLEUW, CATHER & COMPANY
Consulting Engineers

Transportation, Public Transit and Traffic Problems
Industrial Plants, Grade Separations, Railroads, Subways, Power Plants, Expressways, Tunnels, Municipal Works

150 N. Wacker Drive, Chicago 6 **79 McAllister St., San Francisco 2**

INDIANA

ALVA C. TODD
Consulting Engineer

Communication and Electronics

Brookston, Indiana

KENTUCKY

STEPHEN ARTHUR DERRY
Consulting Engineers

Management — Industrial — Civil
Management and Municipal Problems

PUBLIC RELATIONS
Profit Sharing — Project Engineering
Kentucky Home Life Bldg., Louisville 2, Ky.
Wabash 5667

MICHIGAN

COMMONWEALTH ASSOCIATES INC.
Consulting and Design Engineers

Power Generation
Electric—Gas—Water Systems
Industrial Planning

7 Hayes St. **Jackson, Michigan**

NEBRASKA

BACKLUND and JACKSON
Consulting Engineers

Architectural, Civil,
Municipal, Structural.

4924 Poppleton Avenue

Omaha 6, Nebraska

NEW JERSEY

ENGINEERING DRAFTING SERVICE
S. J. Ozimek—Consulting Engineer

Industrial Bldgs.—Mechanical—Structural—Electrical—Piping—Tools—Machine Design—Product Design—Electronics

38 Park Pl., Newark 2, N. J.

GREER & McCLELLAND
Consulting Engineers

FOUNDATION INVESTIGATIONS

98 Greenwood Ave., Montclair, N. J. **2649 N. Main St., Houston, Texas**

W. W. SLOCUM & CO.
Engineers

Industrial-Design-Management
National Newark Building

744 Broad St. **NEWARK 2, N. J.**

UNITED STATES TESTING COMPANY, INC.

Engineering Testing & Inspection
Development — Research — Consulting

Main Laboratories **Hoboken, N. J.**
Boston, Chicago, Dallas, Los Angeles, Memphis, New York, Philadelphia

NEW YORK

GEORGE H. ELLIOTT & COMPANY
Consulting Management Engineers

521 Fifth Avenue

New York 17, New York

KNAPPEN-TIPPETTS ABBETT-McCARTHY
Engineers

Ports, Harbors, Flood Control, Irrigation, Power, Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.

62 West 47th Street **New York City**

MADIGAN-HYLAND
Consulting Engineers

28-04 41st Avenue

Long Island City, New York

PARSONS, BRINCKERHOFF, HALL & MACDONALD
Engineers

51 Broadway, New York 6, N. Y.

JAMES P. O'DONNELL
ENGINEERS

39 Broadway **New York 6, N. Y.**

D. B. STEINMAN
Consulting Engineer

BRIDGES

Design — Construction — Investigation
Reports — Strengthening Advisory Service

117 Liberty Street **NEW YORK CITY**

SYSKA & HENNESSY, INC.
Engineers

Design, Reports, Consultation
Power Plant, Disposal Plant, Water Systems

NEW YORK, N. Y.

OHIO

Chicago Cleveland St. Louis

ADACHE & CASE, ENGINEERS
The Arcade, Cleveland 14, Ohio

Consulting • Design • Reports
• Mechanical • Electrical • Civil
• Industrial Buildings •

PENNSYLVANIA

MICHAEL BAKER, JR., INC.
Consulting Engineers, Surveyors & Constructors

Civil Engineers & Planners. Municipal Engineers, Airport Design, Highway Design, Sewage Disposal Systems, Water Works Design and Operation.

Home Office: Rochester, Pennsylvania

Branch Offices: Jackson, Miss., Harrisburg, Pa., Jeddah, Saudi Arabia

FRAZIER-SIMPLEX, INC.
CONTRACTING & CONSULTING ENGINEERS

Furnace Engineering for the Glass and Steel Industries

436 East Beau Street, WASHINGTON, PA.
U. S. A.

ELLIS M. LANDIS
REGISTERED ENGINEER

Machine and Product Design and Development
Tool Design
Special and Automatic Machinery
Contemporary Redesign

226 S. 52nd St., Philadelphia 39, Pa.

GANNETT FLEMING CORDDRY & CARPENTER, INC.
Engineers

Water, Sewage, Roads, Turnpikes, Bridges, Airports, Traffic, Appraisals.

HARRISBURG, PA.

Philadelphia, Pa. Daytona Beach, Fla.
Pittsburgh, Pa. Medellin, Colombia, S.A.

LAWRIE & GREEN & ASSOCIATES
Architectural and Engineering Offices

321 N. Front Street
Harrisburg, Pennsylvania

Ritchie Lawrie, Jr., P.E., Consulting Engineer

LOEDDING ENGINEERING CO., INC.
Consulting, Design and Detail

Industrial and Commercial Planning
Bridges, Structures of all Types
Material Handling
Conveyors, Gantry, Overhead and Jib Cranes
Reinforced Concrete and Foundations
Industrial Piping and Ventilation

Economy Bank Building, Ambridge, Penna.

MODJESKI AND MASTERS
Consulting Engineer

F. M. Masters
G. H. Randall — J. R. Giese
C. W. Hanson — H. J. Engel

Design and Supervision of Construction
Inspection and Reports
Bridges, Structures and Foundations

535 Fifth Ave., New York, N. Y.
State St. Bldg., Harrisburg, Pa.

LOUIS W. MOXEY, 3RD
Consulting Engineer

ELECTRIC POWER AND LIGHTING FOR INDUSTRY

DESIGN • REPORTS • SUPERVISION

Architects Building Philadelphia 3, Pa

CYRUS WM. RICE & CO. INC.

Consulting Chemical Engineers
Industrial Water and Waste

16 Noble Avenue, Pittsburgh 5, Penna.

EMERSON VENABLE
Chemist and Chemical Engineer

Chemical Analysis
Research — Development
Trouble Shooting

6111 Fifth Ave., Pittsburgh 32, Pa.

TENNESSEE

JOHN J. MORAN
Consulting Engineer

Communications Exclusively
Accounting — Appraisals — Financing — Rate Cases
Engineering of Communications Systems—Additions — Rehabilitation — Maintenance — Relocation of existing systems and associated apparatus and intallations.

605 N. Maple St., Cookeville, Tennessee

TEXAS

JOHN W. MEDLIN
Consulting Engineer

Design of special machinery, materials handling systems, piping. Plant Layout.

4116 Yoakum Houston 6, Texas

Professional Engineers . . .
It is to your advantage to use this

PROFESSIONAL DIRECTORY SERVICE

These inexpensive listings will keep your name before your present and potential clients.

For further information on monthly rates, please write to:

THE BUSINESS MANAGER
THE AMERICAN ENGINEER
1121 15th Street, N. W.
Washington 5, D. C.

NSPE Committee Heads

Advisory Committee on Engineers and Government—Cherry L. Emerson, P.E., Georgia Institute of Technology, Atlanta, Ga.

Awards—E. W. Seegar, P.E., 315 N. 12th St., Milwaukee 3, Wisc.

Budget—T. Carr Forrest, Jr., P.E., Praetorian Bldg., Dallas, Texas.

Building—Oscar Beasley, P.E., 714 14th St., N.W., Washington, D. C.

Chapter Activities—Oliver Deatsch, P.E., Rt. 6 1436, Modesto, Calif.

Constitution and By-Laws — A. H. Kidder, P.E., 900 Sansome St., Philadelphia, Pa.

Education—Clark A. Dunn, P.E., Director, Engineering Experimental Station, Oklahoma A & M College, Stillwater, Okla.

Employment Practices—A. J. Ryan, P.E., 1340 Glenarm Place, Denver, Colo.

Ethical Practices—William D. Williams, P.E., 3308 N. Third St., Phoenix, Ariz.

Evaluation of Objectives—Perry T. Ford, P.E., 197 West Dunedin St., Columbus 15, Ohio.

Extension—Walter Johnson, P.E., 1831 Medford Ave., Topeka, Kan.

Foundation Funds — Dean N. W. Dougherty, P.E., University of Tennessee, Knoxville, Tenn.

Insurance—A. G. Stanford, P.E., 96 Poplar St., N.W., Atlanta, Ga.

International Relations — George J. Nicastro, P.E., 200 Madison Ave., New York, N. Y.

Inter-Professional Relations — C. L. Emerson, P.E., Georgia Tech, Atlanta, Ga.

Intersociety Relations—R. F. Danner, P.E., Okla. Gas & Elec. Co., P. O. Box 1498, Oklahoma City, Okla.

Ladies' Auxiliary—Harry Kennedy, P.E., 1307 Kanawha Valley Bldg., Charleston, West Virginia.

Legislative — Clarence Shoch, P.E., 2129 Walnut St., Allentown, Pa.

Membership—Robert E. Allen, P.E., 1731 Auburn Ave., Dayton, Ohio.

National Affairs—C. Y. Thomas, P.E., 610 Dwight Bldg., Kansas City 6, Mo.

National Defense — Col. Chester Lichtenberg, P.E., 4624 Tacoma Ave., Fort Wayne, Ind.

Nominating—S. L. Stolte, P.E., 1437 Marshall Ave., St. Paul 4, Minn.

Publications—A. C. Neff, P.E., Box 170, Middletown, Ohio.

Public Relations—C. G. Roush, P.E., 1014 Fairfax Bldg., Kansas City 6, Mo.

Registration—R. J. Rhinehart, P.E., 411 Main St., Pine Bluff, Ark.

Reserve Fund — John D. Coleman, P.E., 2520 Elsmere Ave., Dayton 6, Ohio.

Resolutions — Dean N. W. Dougherty, P.E., University of Tennessee, Knoxville, Tenn.

Salary and Fees — Ole Singstad, P.E., 24 State Street, New York, N. Y.

Young Engineers — Robert Blackburn, P.E., 3110 Koppers Bldg., Pittsburgh 19, Pa.

Member State Societies' Officers and Directors

Alabama

Pres., Wallace J. McRoy, 2129 7th Ave., N., Birmingham, Ala.
Sec., H. K. Weaver, 504 Watts Bldg., Birmingham, Ala.
Nat. Dir., Leonard W. Peterson, 812 Fifth Ave., N., Birmingham, Ala.

Arizona

Pres., Dario Travaini, 69 W. Wilshire Dr., Phoenix, Arizona.
Sec. Treas., H. H. Brown, 929 W. Lynwood, Phoenix, Ariz.
Nat. Dir., W. A. Burg, 108 W. Elm Dr., Phoenix, Ariz.

Arkansas

Pres., Beverly E. Ryan, 203 Midland Ave., Little Rock, Ark.
Sec., Edward G. Smith, 2922 Fair Park Blvd., Little Rock, Ark.
Nat. Dir., R. J. Rhinehart, 411 Main St., Pine Bluff, Ark.

California

Pres., George E. Zelhart, 2007 Farris, Fresno, Calif.
Sec., Clyde N. Bradley, 446 Blackstone, Fresno, Calif.
Nat. Dir., Oliver Deatsch, Rt. 6—1436, Modesto, Calif.

Colorado

Pres., Hugh W. Hempel, 1733 California St., Denver 2, Col.
Sec., George C. Hanson, 601 Insurance Bldg., Denver, Col.
Nat. Dir., Alfred J. Ryan, 1340 Glenarm Pl., Denver, Col.

Connecticut

Pres., John J. Macchi, 53 Preston St., Hartford, Conn.
Sec., John Hamill, 54 Crest St., Wethersfield, Conn.
Nat. Dir., Henry Pfisterer, 111 Whitney Ave., New Haven, Conn.

Delaware

Pres., Ernest S. Van Demark, 506 Rodney Court Apts., Wilmington, Del.
Sec., Henry S. Mauk, 116 Cleveland Ave., McDaniel Heights, Wilmington, Del.
Nat. Dir., William A. McWilliams, 43 Division St., Dover, Del.

District of Columbia

Pres., Paul S. Dell'Aria, 5209 25th Rd., N., Arlington, Va.
Sec., Michael Godfrey, P.O. Box 585, Benj. Franklin Sta., Washington 4, D. C.
Nat. Dir., Joseph H. Powers, 1750 16th St., NW, Washington, D. C.

Florida

Pres., Stanley Warth, Southern Bell T & T. Co., Jacksonville, Fla.
Sec., C. D. Hartman, P.O. Box 1005, West Palm Beach, Fla.
Nat. Dir., E. A. Anderson, 1301 Court House, Miami 32, Fla.

Georgia

Pres., Ray L. Sweigert, Georgia Institute of Technology, Atlanta, Ga.
Sec., George M. Normandy, P.O. Box 520, Atlanta 1, Ga.
Nat. Dirs., Roy J. Boston, 12 Capitol Square, SW, Atlanta 3, Ga.; Orbie Bostick, P.O. Box 4569, Atlanta 2, Ga.

Idaho

Pres., Ellis L. Mathes, Dept. of Highways, 603 Main St., Boise, Idaho.
Sec., W. Purdy Eaton, 1704 Harrison Blvd., Boise, Idaho.
Nat. Dir., Orland C. Mayer, 1220 Idaho St., Boise, Idaho.

Illinois

Pres., A. Douglas Spicer, 138 Payson Ave., Kewanee, Ill.
Asst. Sec., P. E. Roberts, 631 E. Green St., Champaign, Ill.
Sec., H. E. Babbitt, 204 Engineering Hall, Urbana, Ill.
Nat. Dirs., Wm. A. Oliver, 218 Engineering Hall, Urbana, Ill.; George DeMent, Rm. 1940, 20 N. Wacker Dr., Chicago 6, Ill.

Indiana

Pres., E. G. Hinshaw, 240 N. Meridian St., Indianapolis, Indiana.
Exec. Sec., Thelma G. Patterson, 1131 Circle Tower Bldg., Indianapolis, Indiana.
Nat. Dir., L. Eugene Easley, 6511 Evanston Ave., Indianapolis, Indiana.

Kansas

Pres., Abram Pratt, 403 Crawford Bldg., Topeka, Kansas.
Sec., James E. Myers, 1111 East Central, Wichita, Kansas.
Nat. Dir., Walter G. Johnson, 1831 Medford Ave., Topeka, Kansas.

Maryland

Pres., James J. O'Donnell, 1531 Windemere Ave., Baltimore 18, Maryland.
Sec. Treas., William G. Robertson, Jr., Henry Adams, Inc., 2315 St. Paul St., Baltimore 18, Md.
Nat. Dir., Owen W. Turpin, 1004 N. Charles St., Baltimore, Md.

Massachusetts

Pres., Charles T. Chave, Stone & Webster Engineering Corp., 49 Federal St., Boston 7, Mass.
Sec., Fred A. Sawyer, Stone & Webster Engineering Corp., 49 Federal St., Boston 7, Mass.
Nat. Dirs., Edwin R. Gardner, 4 Walnut Rd., Swampscott, Mass.; Ernest L. Blair, Stone & Webster Engineering Corp., 49 Federal St., Boston 7, Mass.

Michigan

Pres., Paul S. Calkins, 23230 Power Rd., Farmington, Mich.
Sec., Robert L. Wells, 100 Farnsworth Ave., Detroit 2, Mich.
Nat. Dirs., A. F. Plant, 227 Curtis Bldg., Detroit, Mich.; Otto H. Hall, 1414 Sunnyside, Lansing 10, Mich.

Minnesota

Pres., Charles E. Doell, 3954 Bryant Ave., S., Minneapolis 8, Minn.
Exec. Sec., Hal E. McWethy, 1000 Guardian Bldg., St. Paul, Minn.
Nat. Dirs., M. C. Peterson, 5524 Morgan Ave., S., Minneapolis, Minn.; T. S. Thompson, 1246 University Ave., St. Paul, Minn.

Missouri

Pres., C. Myron Lytle, Box 679, Kansas City, Missouri.
Exec. Sec., Clifford Wood, Box 365, Jefferson City, Mo.
Nat. Dirs., Prof. Joe Butler, Missouri School of Mines, Rolla, Mo.; Garvin H. Dyer, 123 W. Kansas St., Independence, Mo.

Nebraska

Pres., John D. Griffiths, 954 South 58th St., Omaha, Nebraska.
Sec., John P. Rossie, 7712 N. 31st St., Omaha, Neb.
Nat. Dir., Edward Foster, 4360 Nicholas St., Omaha 6, Neb.

Nevada

Pres., George Von Tobel, 214 S. 2nd St., Las Vegas, Nev.
Sec., R. C. Barger, Box 338, Henderson, Nevada.
Nat. Dir., Robert Millard, 909 Canyon St., Ely, Nev.

New York

Pres., Edward J. Nunan, 31 Woodward Ave., Buffalo 14, N. Y.
Exec. Sec., Herald Beckjorden, 1941 Grand Central Terminal Bldg., New York, N. Y.
Nat. Dirs., C. Arnold Dutton, 75 W. Mohawk St., Buffalo 2, New York; Thomas M. Linville, 1147 Wendell Ave., Schenectady 8, N. Y.

New Jersey

Pres., Louis F. Frazza, 225 Bamford Ave., Hawthorne, N. J.
Sec., Treas., Merle Powers, 86 E. State St., Trenton, N. J.
Exec. Dir., Charles J. Dodge, 86 E. State St., Trenton, N. J.
Nat. Dirs., Leo K. McKee, 16 McLaren St., Red Bank, N. J.; Frank P. Cooper, 416 Maple Pl., Cranford, N. J.; Merton S. Adams, 9 Oakland Ave., Trenton, N. J.; W. Earl Christian, Netherwood Ave., Box 215, Rt. 2, New Brunswick, N. J.

New Mexico

Pres., Charles E. Barnhart, 2722 Hyder Dr., Albuquerque, N. M.
Sec. Treas., Dr. T. T. Castonguay, Chem. Engrg. Dept., Univ. of New Mexico, Albuquerque, N. M.
Nat. Dir., Walter K. Wagner, 412 Lafayette Pl., Albuquerque, N. M.

North Carolina

Pres., W. F. Freeman, 116 East Commerce St., High Point, N. C.
Sec., Frank B. Turner, Box 923, Raleigh, N. C.
Nat. Dir., M. F. Wooten, Jr., 215 Latta Arcade, Charlotte, N. C.

North Dakota

Pres., R. H. Myhra, Box 112, Minot, N. D.
Sec., Treas., Joseph Kirby, 827 13th St., Bismarck, N. D.
Nat. Dir., George Teskey, 1209 Eleventh St., Bismarck, N. D.

Ohio

Pres., R. A. Freese, 1516 Keith Bldg., Cleveland, Ohio.
Exec. Sec., Lloyd A. Chacey, 5 East Long St., Columbus, Ohio.
Nat. Dir., Robert E. Allen, 401 Leo St., Dayton, Ohio.

Oklahoma

Pres., G. W. McCullough, Phillips Chemical Co., Bartlesville, Okla.
Exec. Sec., C. S. Worley, P. O. Box 947, Oklahoma City, Okla.
Nat. Dir., Clark A. Dunn, A & M College, Stillwater, Okla.

Pennsylvania

Pres., Ezra K. Nicholson, 1618 Latimer St., Philadelphia, Pa.
Exec. Sec., John T. West, Jr., 228 N. Second St., Harrisburg, Pa.
Nat. Dirs., Ezra K. Nicholson, 1618 Latimer St., Philadelphia, Pa.; J. D. Carpenter, 600 N. Second St., Harrisburg, Penna.; Robert A. Blackburn, 3110 Koppers Bldg., Pittsburgh, Penna.; Allan H. Kidder, 900 Sansom St., Philadelphia 5, Penna.

Puerto Rico

Pres., Alberto Hernandez, P. O. Box 1244, San Juan, Puerto Rico.
Sec., Walter Torres Braschi, Box 197, Hato Rey, Puerto Rico.
Nat. Dir., Alberto Hernandez, Box 1244, San Juan, Puerto Rico.

Rhode Island

Pres., Domenic A. Ionata, 472 Academy Ave., Providence, R. I.
Sec., Louis R. Hampton, 30 Algonquin Dr., Edgewood 5, R. I.
Nat. Dir., Vincent DiMase, 10 Edendale Ave., Providence, R. I.

South Carolina

Pres., C. T. Wise, P.O. Box 960 Greenville, S. C.
Sec. Treas., L. L. Paxson, 219 Rice St., Greenville, S. C.
Nat. Dir., R. K. Rouse, 104 E. Stone Ave., Greenville, South Carolina.

Tennessee

Pres., Lorin B. Allen, 55 McCall Pl., Memphis, Tenn.
Sec., Geo. Flinn, 787 S. Willett St., Memphis, Tenn.
Nat. Dir., Warner Howe, 76 Porter Bldg., Memphis, Tenn.

Texas

Pres., H. P. Mathieu, 1641 Broadway, Lubbock, Texas.
Exec. Sec., Wallace M. Driskell, Jr., 401 Nash Building, Austin, Tex.
Nat. Dir., Elgin B. Robertson, 1339 Plowman, Dallas, Tex.

Utah

Pres., Harold S. Carter, Univ. of Utah, Salt Lake City, Utah.
Sec., George A. Howarth, 1430 Blaine Ave., Salt Lake City, Utah.
Nat. Dir., Walter P. Henoch, 227 South 4th East, Salt Lake City, Utah.

Virginia

Pres., Dan Pletta, Box 366, Blacksburg, Va.
Sec., R. P. Alvey, Jr., 3315 W. Broad St., Richmond, Va.
Nat. Dir., John B. McGaughy, 21st & Llewellyn Ave., Norfolk, Va.

Washington

Pres., L. R. Durkee, 511 New World Life Bldg., Seattle 4, Wash.
Sec., Organization Service Bureau, American Building, Seattle 4, Wash.
Nat. Dir., Howard A. Stingle, E. 3317 30th, Spokane 6, Wash.

West Virginia

Pres., W. O. McCluskey, Jr., P.O. Box 409, Wheeling, West Virginia.
Exec. Sec., Ross B. Johnston, P.O. Box 249, Charleston, West Virginia.
Nat. Dir., Leslie C. Gates, P. O. Box 672, Beckley, West Virginia.
Nat. Dir., Harry G. Kennedy, 1307 Kanawha Valley Bldg., Charleston, W. Va.

Wisconsin

Pres., R. C. Clark, 311 Losey Blvd. N., La Crosse, Wis.
Sec., W. G. Youngquist, 201 Kensington Drive, Madison, Wisc.
Nat. Dirs., A. J. Behling, 2326 S. 75th St., Milwaukee 14, Wisc.; George Martin, Metro Sewerage Dept., P.O. Box 247, Green Bay, Wisc.